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CITY  
OF  
NEWTON.  
1890.

PUBLISHED BY ORDER OF THE CITY COUNCIL.



NEWTON UPPER FALLS:  
FANNING PRINTING CO.  
1891.

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1890

**NEWTON COLLECTION**



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# ADDRESS

— OF —

## HEMAN M. BURR,

MAYOR OF NEWTON,

TO THE CITY COUNCIL,

JANUARY 6, 1890.



NEWTON, MASS.,  
NEWTON GRAPHIC PRESS,  
1890.





## THE MAYOR'S ADDRESS.

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*Gentlemen of the City Council:—*

In deference to an old custom we have come together to-day for a double purpose, to review the work of the last municipal year and to deliberate upon that of the year which has just begun.

The last twelve months have been fruitful of important legislation. A Police Signal System has been provided and will soon be in active operation. A contract has been made for street lights which secures for the city better lights than ever before at a greatly reduced price. New voting precincts have been erected in Newton Highlands and Newtonville. A high service system has been unanimously voted by your predecessors. About 700 acres of land have been seized for additional water supply and the remotest possibility of water famine has thereby been averted. 66,000 feet of land on Waban Hill have already been procured for the new reservoir and stand-pipe, and vigorous measures, undertaken with the unanimous approval of the last city government, are now on

foot to obtain all that the city will ever need for that purpose. The people of Newton have great cause to rejoice in the wise forethought of a City Council that has secured to them and their posterity forever this beautiful and commanding elevation. The land for the play-ground at Newton Centre has been bought at a cost of about \$24,000.00 and some of it has already been deeded to the city. The City Council contributed \$10,000.00 of the purchase money and the rest was raised by a committee of citizens. Perhaps the most important work undertaken by the last City Council was the attempt to change the old system of committee responsibility and to establish a Board of Public Works. In my last inaugural address I ventured to express the opinion that executive powers should not be lodged in the City Council. Time and experience have confirmed and strengthened the judgment I then expressed. I am not afraid of going too far when I say that the old system contains all the materials for bad government. That in spite of it our government has been good is due to the uncommonly high character of our electorate and of the men who have represented it in the City Council and to the alertness and sensitiveness of public opinion among our citizens. In brief, as I said before, "the men of Newton can make any system of government work, even the very worst." This however furnishes no argument for clinging to a system we have outgrown, provided that we are able to see a way to better things. I therefore trust that speedy action may be taken upon the ordinances referred to you by the last city government and that

at an early day I may be able to congratulate you and the people of Newton upon a change in administrative methods that will lighten your labors and at the same time afford full promise of greater vigor in executive work and of more harmonious action in the various departments.

Through the liberal action of the last City Council a lot has been provided in the Newton Cemetery for the interment of old soldiers and sailors. It would indeed be a lasting reproach to a community like ours had it suffered men who upheld its flag during the awful years of civil war to rest in unhonored graves. It may not be out of place here to direct your attention to the fact that the Charles Ward Post is sadly in need of a memorial hall and to bespeak your encouragement, as individuals, of so worthy an enterprise. Whatever we may do as city officials, surely we can give our individual aid to no nobler cause.

#### LIQUOR LAW.

The vote against license was as usual strong enough to voice with no uncertain sound the sentiment of the people upon this vitally important question. During the year the unprecedented number of 40 convictions have been obtained for violations of the law. Too much praise cannot be given to the police department and to the fearless gentleman, who, from his place on the bench, has so honestly and courageously seconded the efforts of the department and the executive in stamping out the traffic in intoxicating liquors. I prom-

ise you and the people of Newton that during the coming year the law shall be enforced without regard to power or place and that impartial justice shall be meted out to every offender that can be unearthed.

#### PLAY GROUNDS.

The last City Council, by its contribution of \$10,000 toward the Newton Centre playground fund, has established a precedent from which its successors are not likely to depart. It is much to be hoped that movements may be set on foot in the villages on the northern side of the city similar to that which has been so fruitful of results in Newton Centre. If two playgrounds could be provided for the four large villages the question would be well settled for all time. I need hardly remind you that every year's delay increases the difficulty of obtaining land which is suitable for the purpose at a price within the means of the citizens and the city.

#### SEWERAGE.

The adoption of the Metropolitan Sewerage Bill by the last legislature is a long step forward in the solution of Newton's local problem. Little can be done by you this year, for you must now wait for the out-let which the great trunk sewer will afford. Some work of preparation can, however, be profitably undertaken at once.

In reviewing the work of the departments I shall omit much that is usually included in the mayor's address, leaving you to find it in the reports soon to be published.



# THE MAYOR'S ADDRESS.

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## THE CITY TREASURY.

On account of the transactions of the financial year ending Dec. 31st, 1889,	
there are outstanding temporary loans	\$100,000 00
Bills unpaid . . . . .	2,265 00
Unexpended balance of the Read Fund Income . . . . .	626 19
Special deposit made by Newton Centre Play Ground committee for purchase of land for Play Ground . . . . .	6,000 00
Due Water Construction account on account of sale of bonds . . . . .	5,415 83
Total . . . . .	<u>\$134,307 02</u>
Against this there are :	
Cash on hand . . . . .	\$68,130 24
Uncollected taxes, good . . . . .	91,000 00
Due the treasury for advances made for the enlargement of Claffin schoolhouse . . . . .	4,666 52
Leaving a balance in the treasury of . . . . .	29,489 74

Our liabilities at the close of the financial year were as follows :

## FUNDED CITY DEBT.

Outstanding Bonds and Notes and accrued interest on same . . . . .	\$273,084 54
Sinking Fund for payment of same . . . . .	34,037 20
Net Funded Debt . . . . .	<u>\$239,047 34</u>

## WATER DEBT.

Outstanding Water Bonds and accrued interest	
on same . . . . .	\$1,244,920 00
Sinking Funds for payment of the same . . . . .	287,330 40
Net Water Debt . . . . .	<u>\$957,589 60</u>
The Funded City Debt, December 31st, 1888,	
was . . . . .	\$311,218 38
Sinking Fund . . . . .	28,963 68
Net Debt . . . . .	<u>\$282,254 70</u>
Decrease in Net Funded Debt for the year	
1889 . . . . .	\$43,207 36
Outstanding Water Bonds and accrued interest,	
December 31st, 1888 . . . . .	\$1,192,400 00
Sinking Fund . . . . .	254,317 07
Net Debt . . . . .	<u>\$938,082 93</u>
Increase in Net Water Debt for the year	
1889, . . . . .	\$19,506 67
Total decrease in the whole Debt for the year	
1889 . . . . .	<u>\$23,700 69</u>

To this last total should be added \$19,612.08, the cost of the Bemis and Washington street bridges. The Council of 1888 provided for payment of this cost by issuing notes of \$1000, extending over a term of ten years, thus practically funding the debt. The Council of 1889 rescinded the order creating this debt and directed its payment out of the surplus moneys in the Treasury. The City's liabilities were thus decreased by

the full cost of the bridges and the amount of such cost should clearly, I think, be included in the figures which represent the decrease of debt for the year.

The \$10,000.00 for the playground at Newton Centre should upon similar principles be deducted from the figures representing the decrease. I recommend, however, that this be paid at once from the surplus moneys in the treasury. The total decrease is \$33,312.77.]

There will be a large increase in the Water Debt during the present year. The cost of high service was estimated by your predecessors at \$95,369.50 and that of increasing the supply at \$98,900.00. Further sums of money, impossible to estimate at present, will be required for land on Waban Hill and for land recently taken along the banks of Charles River.

There will mature this year School and Library notes amounting to \$14,250 00, which will be paid from the tax levy; also a City note for \$20,000.00, which will be paid from the tax levy through the agency of the Sinking Fund.

## READ FUND.

Balance on hand January 1, 1889 . . . .	\$895 13
Received during the year . . . .	1,614 22
Total available for the year . . . .	<u>\$2,509 35</u>
There has been paid out for a picnic, lectures, the library and the poor . . . .	1,583 16
	<u>\$926 19</u>

There has also been paid to the Trustees from	
the income of the year to make good	
the principal . . . . .	300 00
	<hr/>
Leaving on hand a balance of . . . . .	\$626 19

The principal of this Fund is \$40,000.00, bearing interest at the rate of four per cent. per annum.

## ASSESSORS' DEPARTMENT.

In 1889 the real estate was valued at . . . . .	\$25,390,300 00
The personal estate was valued at . . . . .	9,264,372 00
	<hr/>
Total . . . . .	\$34,654,672 00
Increase in valuation of real and personal	
estate . . . . .	\$1,476,030 00
Taxable value of corporate stocks, (esti-	
mated) . . . . .	\$3,461,740 00
Taxable value of bank stocks, (estimated) . . . . .	915,780 00
	<hr/>
Total . . . . .	\$39,032,192 00
Total increase of taxable property for the	
year, . . . . .	\$883,885 00
The property exempt from taxation was	
valued at . . . . .	\$1,888,377 00
The rate of tax per thousand was as follows:	
City . . . . .	\$13 41
State . . . . .	80
County . . . . .	59
	<hr/>
Total per thousand . . . . .	\$14 80

In 1888 the total tax rate per thousand

was . . . . . \$15 20

#### HIGHWAY DEPARTMENT.

It is gratifying to note the confidence which the public has had in the committee in charge of this department and the unselfish support given to it by all classes of citizens in its effort to conduct its work upon business principles. Due regard has constantly been had to the amount of the appropriation and the work of the department has been well done in accordance with intelligent plans, carefully made in advance.

#### POLICE.

The appropriation for 1890 contains provision for five additional patrolmen. Of this number four will be needed for the wagon, leaving a net increase of one for the ordinary purposes of the force. It is much to be regretted that the increase is so small. With the possible exception of the street department I know of no department where the demand for larger expenditures is so pressing and imperative as here. The crimes against property which have recently been committed with audacity and success in Newton have excited a natural alarm among our citizens, and evidence abounds that the demand for more police protection is wide spread. With our present force there are but 15 officers available for night duty, a number wholly insufficient to do half the work expected of them.

I desire to recommend a radical change in the schedule

fixing the salaries of officers. They now receive \$750 the first year, \$825 the second, \$900 the third, and \$1000 the fourth, and every succeeding year. Every new officer after paying \$100 for the equipment which he is obliged to purchase, has only \$650 with which to meet the first year's expenses. I therefore recommend that the salary be fixed at \$900 for the first year and \$1000 for the second and all succeeding years. I am thoroughly convinced that the change I recommend, if adopted by you, will result in securing to the city the services of men whom it is impossible, under the present system, to tempt away from their private business by the offer of a position on the force.

#### POOR AND ALMSHOUSE.

I renew my recommendation of last year, that a new site be found as soon as possible for the City Poor Farm. Without dwelling upon the many sufficient reasons for this change it is enough to observe that the land now occupied by the farm is too valuable to be longer used for such a purpose.

#### WATER DEPARTMENT.

The deficit in this department has been brought down to \$8,161.06 for the year 1889, as against \$9,572.26 in 1888, and \$11,609.79 in 1887. The expenses of the department, including interest on bonds, service and meter account and rebates were \$80,650. The receipts for meter rentals, which are not included in the total receipts of the department, were \$3,198.83. In 1889 they were \$2,659.

## REGISTRATION.

The registration for the state election, Nov. 5, was 3782. Ballots cast, 2829.

Registration for the city election was :— Men, 3859 ; Women, 190. Ballots cast :— Men, 3079 ; Women, 107.

I recommend that an effort be made before the legislature to bring about such a change in the state law as will make it possible to establish a voting precinct for the Lower Falls.

## SCHOOLS.

For information in detail concerning the schools I refer you to the annual reports of the committee and superintendent. You will doubtless be interested to know that the average cost per pupil has been reduced \$1.68 during the past year. I have taken occasion to visit every school room in Newton and I am glad to testify to the high character of the teachers and to the pleasant and wholesome relations subsisting between them and their pupils. My only standard of comparison is the schools as they were many years ago when I attended them as a pupil. The improvement has indeed been marked. I have found the teachers doing the best of work in their own way, unshackled by formal rules and giving full play to their own individuality. Good work has therefore resulted from the employment of means as various as the characters of the teachers who used them. Moreover the system has been made sufficiently flexible to afford every facility for promotion to a pupil who is willing and able to advance more rapidly than his fellows.



## PUBLIC LIBRARY.

On December 31, 1889, there were in the Library 30,616 volumes, of which 2,250 were added during the last year. The circulation at Newton was 52,450, and at the other villages, through the agencies, 52,780, making a total of 105,230. The increase in circulation over that of the year 1888 was 1230.

## FIRE DEPARTMENT.

The department has answered 83 calls during the year 1889. On Thanksgiving day engines 1 and 2, with details from companies 1, 4, 5, 6 and 7 rendered efficient service in controlling the great fire in Boston. The total loss by fire for the year has been \$38,055.42. The loss in excess of insurance has been \$4,719.52. I urge your earnest and favorable consideration of recommendations for changes of system which will be made by the chief engineer in his annual report.

## BOARD OF HEALTH.

The work of this department has been performed with unusual and commendable energy. Under its control the spread of a malignant contagious disease has been arrested, house offal has been collected and removed with more efficiency than ever before since the creation of the department, and important improvements in drainage have been ordered and successfully effected on Knowles, Clinton and Oakland streets. Provision has also been made for draining wet land

on Elm and River streets, and the work will be undertaken in the spring. The members of the board are unanimous in their approval of the project for erecting a ward for contagious diseases at the Newton Cottage Hospital. Such a ward would prove a most important agent in dealing with contagious diseases and would greatly assist the board in its efforts to control them. I trust that you will find a way to provide the funds for its erection.

#### DEPARTMENT APPROPRIATIONS.

Appropriations have been exceeded in nine departments of expenditure out of thirty. If you agree with me that it is desirable to keep expenses within appropriations you and you alone are able to apply the remedy for the evil. As members of committees you have practically full control of most of the appropriations. Foresight, watchfulness and caution, not spasmodic, but unremitting from day to day, week to week, and month to month, will result in a prudent administration of department appropriations.

#### *Gentlemen of the City Council:*

In addressing you for the second and the last time I venture to express the hope that we may work together cordially and harmoniously for the best good of our fellow-citizens, who have honored us by entrusting to us the management of their public affairs. Those of you who have served the city before already know, and those of you who

take their seats here to day for the first time will soon learn, that many and pressing demands are made by individuals which must be refused if a sole regard to the interests of all the people is to control your action. It is impossible for you to do your full duty if you unduly encourage local interests. I trust, therefore, that a truly broad and catholic spirit may control your deliberations and that by means of cordial co-operation between you, the executive and the various departments, the best results for all the people of all the villages may be obtained.





ANNUAL REPORT  
OF THE  
FINANCES OF THE CITY  
OF NEWTON,  
MASSACHUSETTS,  
FOR THE YEAR ENDING DECEMBER 31, 1890.  
No. CCXII.  
REPORTS OF CITY TREASURER.  
CITY AUDITOR.  
CITY CLERK, REGISTRARS OF VOTERS,  
AND  
SUPERINTENDENT OF BURIALS.



NEWTON UPPER FALLS:  
FANNING PRINTING CO.,  
1891.





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CITY OF NEWTON, DEC. 31, 1890.

*To the Honorable Mayor and City Council:*

*Gentlemen:*—In accordance with Section 11, Ordinance 4, I have the honor to lay before you the statement of the receipts and expenditures of the Treasury Department for the year ending December 31, 1890.

Very respectfully yours,

JOHN A. KENRICK,  
*Treasurer and Collector.*



# CITY TREASURER'S ACCOUNT.

CITY OF NEWTON *in account with* JOHN A. KENRICK,  
*Treasurer and Collector.*

YEAR ENDING DECEMBER 31, 1890.

DR.

Almshouse expenses and repairs . . .	\$3,712 30
Almshouse special . . . . .	7,600 00
Armory . . . . .	716 15
Assessors . . . . .	7,857 19
Bath house . . . . .	503 25
Bemis bridge . . . . .	1,000 00
Board of Health . . . . .	6,424 74
Books, stationery and printing . . .	3,036 72
City Engineer's Department . . .	8,865 51
City Hall . . . . .	2,054 66
Claffin school . . . . .	31,592 75
County tax . . . . .	27,421 81
Curbing . . . . .	3,055 66
Drains and culverts . . . . .	28,080 96
Elections and registrations of voters . .	4,093 65
Evening schools . . . . .	763 43
Fire alarm striker, Nonantum . . .	525 92

*Amount carried forward*

\$137,304 70



<i>Amount brought forward,</i>	\$137,304 70
Fire department . . . . .	31,987 28
Funded debt, 4 per cent. note . . . . .	5,150 00
Funded debt, 3 1-2 per cent. note . . . . .	4,500 00
Funded debt, 3 1-2 per cent. note, Free Library,	4,600 00
Funded debt, 6 per cent. note . . . . .	20,000 00
Gravel land . . . . .	212 75
Highways, general repairs . . . . .	68,277 47
Highways, widening . . . . .	25,027 27
Interest on city loans, permanent . . . . .	12,085 37
Interest on city loans, temporary . . . . .	7,509 22
Interest on water bonds . . . . .	66,840 00
Indigent soldiers and sailors . . . . .	984 00
Kenrick Fund . . . . .	171 66
Land damages . . . . .	4,518 50
Memorial Day . . . . .	500 00
Miscellaneous expenses . . . . .	7,432 46
National bank tax . . . . .	1,436 05
Newton Centre play grounds, committee . . . . .	6,000 00
Newton Centre play grounds . . . . .	10,000 00
Newton Cottage Hospital . . . . .	1,500 00
Newton Cottage Hospital, special . . . . .	10,000 00
Newton Free Library . . . . .	10,752 37
Newton Highlands, engine house . . . . .	10,450 00
Overlay, 1887 . . . . .	223 17
Overlay, 1888 . . . . .	91 80
Overlay, 1889 . . . . .	586 97
Overlay, 1890 . . . . .	2,657 60
Parks and squares . . . . .	1,564 31
Police department . . . . .	41,680 23
Poor out of Almshouse . . . . .	9,323 64
Premium on tax sale . . . . .	97 00
Public property . . . . .	15,536 68
<i>Amount carried forward</i>	<hr/> \$519,000 50

<i>Amount brought forward,</i>	\$519,000 50
Read fund income . . . . .	1,579 24
Removal of ashes . . . . .	4,431 57
Salaries . . . . .	14,500 00
Schools . . . . .	108,977 57
School incidentals . . . . .	10,452 60
Sewerage . . . . .	1,667 48
Sidewalks . . . . .	16,093 39
Sinking fund, city debt . . . . .	22,000 00
Sinking fund, school loan . . . . .	4,000 00
Sinking fund, water bonds . . . . .	22,000 00
Soldiers' relief . . . . .	98 00
State tax . . . . .	29,802 50
State aid . . . . .	1,081 00
Street lights . . . . .	24,001 53
Temporary loans . . . . .	575,000 00
Use of hydrants . . . . .	12,240 00
Waban school house . . . . .	250 00
Water construction . . . . .	218,102 17
Water maintenance . . . . .	14,621 99
Water maintenance, meter and service pipe . . . . .	3,509 68
Water rebate . . . . .	395 10
Watering streets . . . . .	6,205 45
Watering troughs and drinking posts . . . . .	1,209 50

	\$1,611,219 27
Balance in the treasury Dec. 31, 1890 . . . . .	41,703 26

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\$1,652,922 53

## CR.

Balance in treasury December 31, 1889 . . . . .	\$68,130 24
Almshouse . . . . .	1,803 03
Armory . . . . .	400 00

---

*Amount carried forward,* \$70,333 27

<i>Amount brought forward</i>	\$70,333 27
Board of Health . . . . .	120 84
City Hall . . . . .	826 00
Collector's fees . . . . .	528 18
Corporation tax . . . . .	50,278 61
Curbing . . . . .	1,154 05
Dog tax . . . . .	2,911 94
Drains and culverts, income . . . . .	78 43
Druggists' licenses . . . . .	22 00
Evening schools . . . . .	9 00
Fire Department, income . . . . .	23 00
Foreign ships . . . . .	718 47
Funded debt, note 4 per cent. almshouse . . . . .	7,600 00
Funded debt, note 4 per cent. Claffin school . . . . .	33,500 00
Funded debt, note 4 per cent. drainage . . . . .	25,000 00
Funded debt, note 4 per cent. Cottage Hospital . . . . .	10,000 00
Funded debt, note 4 per cent. Newton High-lands Engine House . . . . .	16,500 00
Funded debt, note 4 per cent. water bonds . . . . .	183,000 00
Highways . . . . .	2,931 03
Highways, widening . . . . .	200 00
Indigent soldiers and sailors . . . . .	471 00
Interest on bank deposits . . . . .	921 13
Interest on taxes . . . . .	2,919 95
Interest on water scrip . . . . .	1,986 01
Kenrick Fund, income . . . . .	119 16
Land damages . . . . .	4,518 50
Meter rates . . . . .	51,123 51
Meter rents . . . . .	3,624 58
Meter and service pipes . . . . .	4,156 18
Milk licenses . . . . .	36 00
National bank tax . . . . .	14,471 89
National bank tax . . . . .	1,447 36
<i>Amount carried forward</i>	<hr/> \$491,530 09

<i>Amount brought forward</i>	\$491,530 09
Newton Free Library, catalogue account .	13 00
Peddlers' licenses . . . . .	88 00
Police Department . . . . .	2,146 17
Poor out of Almshouse . . . . .	2,128 96
Public property . . . . .	765 10
Premium on notes sold . . . . .	1,016 16
Premium on tax sale . . . . .	647 00
Record and other fees . . . . .	389 70
Read Fund income . . . . .	1,662 05
School incidentals income . . . . .	53 82
Sinking fund commissioners (to pay note) .	20,000 00
Soldiers' relief income . . . . .	17 50
State aid . . . . .	1,132 50
Taxes, 1884 . . . . .	2 86
Taxes, 1886 . . . . .	154 80
Taxes, 1887 . . . . .	329 86
Taxes, 1888 . . . . .	3,051 81
Taxes, 1889 . . . . .	86,645 75
Taxes, 1890 . . . . .	446,706 10
Tuition of non-resident pupils . . . . .	218 50
Temporary loans . . . . .	554,300 00
Water construction . . . . .	19,859 09
Water rates . . . . .	20,058 71
Watering streets . . . . .	5 00
	<hr/>
	\$1,652,922 53

**LEDGER BALANCES.**

## DR.

Betterments, Newtonville drain . . . . .	\$1,883 70
Bills receivable, Kenrick Fund . . . . .	1,250 00
Cash . . . . .	41,703 26
	<hr/>
<i>Amount carried forward</i>	\$44,836 96

<i>Amount brought forward</i>	\$44,836 96
Public property owned by the city . . . . .	1,077,935 35
Taxes, 1886 . . . . .	1,052 25
Taxes, 1887 . . . . .	1,720 87
Taxes, 1888 . . . . .	2,057 29
Taxes, 1889 . . . . .	6,397 99
Taxes, 1890 . . . . .	94,376 16
Water construction . . . . .	1,409,827 25
	<hr/>
	<u>\$2,638,204 12</u>

## CR.

City of Newton . . . . .	\$786,874 14
Funded debt, 3 1-2 per cent. library notes . . . . .	4,600 00
Funded debt, 3 1-2 per cent. high school notes, . . . . .	27,000 00
Funded debt, 4 per cent. almshouse note . . . . .	7,600 00
Funded debt, 4 per cent. Claflin school notes . . . . .	33,500 00
Funded debt, 4 per cent. drainage note . . . . .	25,000 00
Funded debt, 4 per cent. fire department notes . . . . .	16,500 00
Funded debt, 4 per cent. Newton Cottage Hos- pital notes . . . . .	10,000 00
Funded debt, 4 per cent. school notes . . . . .	20,600 00
Funded debt, 6 per cent. city notes . . . . .	77,000 00
Funded debt, 4 per cent. school bonds . . . . .	44,000 00
Funded debt, 4 per cent. park bonds . . . . .	25,000 00
Funded debt, 5 per cent. municipal bonds . . . . .	34,000 00
Funded debt, 4 per cent. water scrip . . . . .	550,000 00
Funded debt, 5 per cent. water scrip . . . . .	250,000 00
Funded debt, 6 per cent. water scrip . . . . .	600,000 00
Kenrick Fund . . . . .	4,062 50
Mayor's warrants, unpaid bills . . . . .	22,218 18
Newton Highlands' engine house . . . . .	6,050 00
	<hr/>
<i>Amount carried forward</i>	\$2,544,004 82

<i>Amount brought forward,</i>	\$2,544,004 82
Overlay, 1887 . . . . .	2,083 34
Overlay, 1888 . . . . .	2,145 83
Overlay, 1889 . . . . .	2,775 23
Overlay, 1890 . . . . .	6,038 85
Premium on tax sale . . . . .	659 00
Read Fund income . . . . .	709 00
Suspense account . . . . .	488 05
Temporary loans . . . . .	79,300 00
	<hr/>
	\$2,638,204 12
	<hr/>

CITY OF NEWTON, CITY HALL, }  
WEST NEWTON, Jan. 5, 1891. }

The Joint Committee on Finance beg leave to report that in pursuance of Section 13, Ordinance 4, they have examined the books and accounts of the Treasurer and Collector for the financial year ending December 31, 1890, and find them correct in all respects and all payments properly vouched.

Cash on hand December 31, 1889 . . . . .	\$68,130 24
Total cash receipts for the year ending Dec. 31,	
1890 . . . . .	1,584,792 29
	<hr/>
	\$1,652,922 53
Payments for the year . . . . .	1,611,219 27
	<hr/>
Cash on hand at close of business Dec. 31, 1890,	\$41,703 26

This balance has been verified by the examination of the bank balances, to the credit of the city, and cash and cash items in the office.

They further report that there remains due and uncollected the following taxes and assessments.

Taxes, 1886 . . . . .	\$1,052 25
Taxes, 1887 . . . . .	1,720 87
Taxes, 1888 . . . . .	2,057 29
Taxes, 1889 . . . . .	6,397 99
Taxes, 1890 . . . . .	94,376 16
Curbing assessments . . . . .	660 10
Betterments on drains, Wards 1 and 2, estimated . . . . .	700 00
	<hr/>
	\$106,964 66

Respectfully submitted,

F. JOHNSON.

LAWRENCE BOND.

ELLIOTT J. HYDE.

A. F. LUKE.

GEO. F. CHURCHILL.



# AUDITOR'S REPORT.

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CITY OF NEWTON, AUDITOR'S DEPARTMENT, }  
March 2, 1891. }

*To the Honorable City Council:*

*Gentlemen:*—In conformity with the requirements of the several sections of the City Ordinance, I have the honor to present herewith the Annual Report of the receipts and expenditures of the City of Newton for the financial year commencing Jan. 1 and terminating Dec. 31, 1890, with a detailed account of each department, a statement of the liabilities and assets, a table showing the funded debt, the rates of interest, and times when notes and bonds are payable, another showing appropriations, Mayor's drafts, Treasurer's payments and balances, a statement of the Sinking Funds and of the Read Fund, a summary statement of receipts and expenditures for the year, a statistical table, showing the number of polls, real and personal estate, town, city, county, and state taxes, rate of taxation, appropriations, etc., with the number of houses from year to year for thirty consecutive years. Among the remaining tabulations will be found a schedule of the city property so arranged as to show in separate classification the property belonging to the Almshouse, Fire, Highway, School, and other Departments. In addition to these, is also given such other information appertaining to the fiscal interests of the city as may possess general interest.

Very respectfully,

BENJAMIN F. OTIS,

*Auditor.*

## DUTIES OF THE AUDITOR OF ACCOUNTS.

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THE following are the important provisions of the Ordinance setting forth the duties of the City Auditor:—

The Auditor shall receive all accounts and claims against the city, after the same shall have been verified by the Committee, or the proper certifying officers authorized on behalf of the city to make the contract, or cause the expenditure to be made. He shall carefully examine all such accounts and claims, see that they are correctly cast and duly authorized by the City Council or its order, and, having certified to the same, shall present them properly filed and labeled, to the Committee on Accounts.

The Auditor shall act as clerk of the several standing and joint standing committees, and as secretary of the Sinking Fund Commissioners and Trustees of the Read Fund, without extra compensation.

The Auditor, on or before the first day of March annually, shall make a report to the City Council of the receipts and expenditures of the past financial year, in detail, and shall give in his report, a schedule of the property of the city and of leases thereof, and an exhibit of the loans or debts bearing interest, due from the city, the rates of interest, and the time when payable. He shall each month transmit to the Mayor, and each member of the City Council, a statement showing the amounts expended and unexpended of each appropriation.

**LIABILITIES OF THE CITY OF NEWTON TO DEC.  
31, 1890, INCLUSIVE.**

Water loan, 6 per cent. . . .	\$600,000 00	
Accrued interest on same . . .	18,000 00	
Water loan, 5 per cent. . . .	250,000 00	
Accrued interest on same . . .	6,250 00	
Water loan, 4 per cent. . . .	550,000 00	
Accrued interest on same . . .	5,500 00	
	<hr/>	\$1,429,750 00
Town notes, 6 per cent. . . .	\$77,000 00	
Accrued interest on same . . .	1,214 50	
	<hr/>	78,214 50
Municipal bonds, 5 per cent. . .	\$34,000 00	
Accrued interest on same . . .	850 00	
	<hr/>	34,850 00
Public park bonds, 4 per cent. .	\$25,000 00	
Accrued interest on same . . .	250 00	
	<hr/>	25,250 00
School house notes, 4 per cent. .	\$20,600 00	
Accrued interest on same . . .	357 07	
	<hr/>	20,957 07
School loan bonds, 4 per cent. .	\$44,000 00	
Accrued interest on same . . .	440 00	
	<hr/>	44,440 00
High School loan, 3 1-2 per cent. .	\$27,000 00	
Accrued interest on same . . .	223 12	
	<hr/>	27,223 12
Newton Free Library loan, 3-1-2 per cent. . . . .	\$4,600 00	
Accrued interest on same . . .	38 91	
	<hr/>	4,638 91
New Clafin School House loan, 4 per cent. . . . .	\$33,500 00	
Accrued interest on same . . .	335 00	
	<hr/>	33,835 00
<i>Amount carried forward,</i>		<hr/> \$1,699,158 60

<i>Amount brought forward,</i>		\$1,699,158 60
Special drains and culverts		
loan, 4 per cent. . . .	\$25,000 00	
Accrued interest on same . .	250 00	
	<hr/>	25,250 00
Engine house, Newton High-		
lands, loan, 4 per cent. . .	\$16,500 00	
Accrued interest on same . .	165 00	
	<hr/>	16,665 00
Newton Cottage Hospital loan,		
4 per cent. . . . .	\$10,000 00	
Accrued interest on same . .	100 00	
	<hr/>	10,100 00
Land for Almshouse loan, 4		
per cent. . . . .	\$7,600 00	
Accrued interest for same . .	76 00	
	<hr/>	7,676 00
Temporary loans . . . . .	\$79,300 00	
Accrued interest on same . .	150 00	
	<hr/>	79,450 00
Uninvested portion of principal		
of Kenrick Fund . . . .	\$2,750 00	
Accrued interest on same . .	62 50	
	<hr/>	2,812 50
Unexpended balance of appropriation for en-		
gine house, Newton Highlands . . .		6,050 00
Read Fund income . . . . .		709 00
Premium on tax sale . . . . .		647 00
Suspense account, amount in treasury subject		
to call by sundry parties . . . . .		488 05
Mayor's warrants unpaid, water construction .		6,870 19
Mayor's warrants unpaid, appropriation . .		22,218 18
	<hr/>	
<i>Amount carried forward</i>		\$1,878,094 52

*Amount brought forward* \$1,878,094 52

**DETAILED STATEMENT OF ASSETS.**

Balance of taxes	
1886 . . .	\$1,052 25
Balance of taxes	
1887 . . .	1,720 87
Balance of taxes	
1888 . . .	2,057 29
Balance of taxes	
1889 . . .	6,397 99
Balance of taxes	
1890 . . .	94,376 16
	\$105,604 56

Due from Commonwealth  
of Massachusetts, as fol-  
lows : —

On account of aid to soldiers and sailors under Chapters 301 and 279 Acts of 1889,	1,500 00
Balance of corporation tax .	11,683 84

Due from miscellaneous  
sources, namely : —

Due from county treasurer, dog tax 1890 . . . .	2,781 18
From sundry persons for bet- terments on drains, Wards 1 and 2, estimated . . .	700 00
From sundry persons, side walks, curbing assess- ments, etc. . . . .	660 10
Cash on hand . . . .	41,703 26

\$164,632 94

*Amounts carried forward,* \$164,632 94      \$1,878,094 52

*Amounts brought forward*                      \$164,632 94    \$1,878,094 52

**Sinking Funds.**

Water debt sinking fund: —

City of Newton

water bonds,

5 per cent. . \$73,000 00

City of Newton

water bonds,

4 per cent. . 179,000 00

City of Newton

schoolhouse

note, 4 per

cent. . . 5,150 00

Engine house,

Newton High-

lands note, 4

per cent. . 5,000 00

Boston & Maine

R.R. Co. note,

4 1-2 per cent, 57,000 00

Coupons uncol-

lected . . .

1,825 00

Cash on deposit

on interest .

544 65

————— \$321,519 65

City debt sinking fund: —

Boston & Maine R.

R. Co. note 4 1-2

per cent. . . \$2,000 00

Cash on deposit

on interest .

315 28

————— 2,315 28

*Amounts carried forward*

————— \$488,467 87    \$1,878,094 52

<i>Amounts brought forward</i>	\$488,467 87	\$1,878,094 52
School loan sinking fund:—		
City of Newton		
water bonds, 4		
per cent. . . .	\$14,000 00	
Boston & Maine		
R. R. Co. note,		
4 1-2 per cent. . .	9,000 00	
Cash on deposit		
on interest . . .	188 76	
	<hr/>	23,188 76
Public park sinking fund:—		
City of Newton		
water bonds, 4		
per cent. . . .	\$14,000 00	
Boston & Maine		
R. R. Co. note,		
4 1-2 per cent. . .	1,000 00	
Cash on deposit		
on interest . . .	842 15	
	<hr/>	15,842 15
	<hr/>	527,498 78
		<hr/>
		\$1,350,595 74

**RECAPITULATION.****Water Debt.**

Water loan . . . . .	\$1,400,000 00
Accrued interest on same . . . . .	29,750 00
Mayor's warrants unpaid for	
construction . . . . .	6,870 19
	<hr/>
	\$1,436,620 19
Sinking fund . . . . .	321,519 65
Net water liability . . . . .	<hr/>
	\$1,115,100 54



**City Debt exclusive of Water Debt.**

Town notes . . . . .	\$77,000 00	
Accrued interest on same . . . . .	1,214 50	
	<hr/>	\$78,214 50
Municipal Bonds . . . . .	\$34,000 00	
Accrued interest on same . . . . .	850 00	
	<hr/>	34,850 00
Public Park bonds . . . . .	\$25,000 00	
Accrued interest on same . . . . .	250 00	
	<hr/>	25,250 00
School house notes . . . . .	\$20,600 00	
Accrued interest on same . . . . .	357 07	
	<hr/>	20,957 07
School loan bonds . . . . .	\$44,000 00	
Accrued interest on same . . . . .	440 00	
	<hr/>	44,440 00
High school loan . . . . .	\$27,000 00	
Accrued interest on same . . . . .	223 12	
	<hr/>	27,223 12
Newton Free Library loan . . . . .	\$4,600 00	
Accrued interest on same . . . . .	38 91	
	<hr/>	\$4,638 91
New Claflin school house loan . . . . .	\$33,500 00	
Accrued interest on same . . . . .	335 00	
	<hr/>	33,835 00
Special drains and culverts loan . . . . .	\$25,000 00	
Accrued interest on same . . . . .	250 00	
	<hr/>	25,250 00
Engine house, Newton High- lands, loan . . . . .	\$16,500 00	
Accrued interest on same . . . . .	165 00	
	<hr/>	16,665 00
<i>Amount carried forward,</i>		<hr/> \$311,323 60



<i>Amount brought forward,</i>		\$311,323 60
Newton Cottage hospital loan .	\$10,000 00	
Accrued interest on same .	100 00	
	<hr/>	10,100 00
Land for Almshouse, loan .	\$7,600 00	
Accrued interest on same .	76 00	
	<hr/>	7,676 00
Temporary loans . . . .	\$79,300 00	
Accrued interest on same .	150 00	
	<hr/>	79,450 00
Uninvested portion of principal of Kenrick Fund . . . .	2,750 00	
Accrued interest on same .	62 50	
	<hr/>	2,812 50
Unexpended balance of appropriation for En- gine house, Newton Highlands . . . .		6,050 00
Read Fund income . . . . .		709 00
Premium on tax sale . . . . .		647 00
Suspense account amount in treasury subject to call by sundry parties . . . . .		488 05
Mayor's warrants unpaid, appropriations, etc.,		22,218 18
		<hr/>
		\$441,474 33
Cash on hand . . . . .	\$41,703 26	
Sinking fund . . . . .	2,315 28	
School loan sinking fund .	23,188 76	
Public park sinking fund .	15,842 15	
Balance taxes uncollected .	105,604 56	
Other assets uncollected .	17,325 12	
	<hr/>	205,979 13
		<hr/>
Net city liability . . . . .	-	\$235,495 20

## PERMANENT DEBT. — Descriptive List.

	Rate.	Date of Loan, Etc.	Payable.	Amount.	Interest when Payable.
Commonwealth of Massachusetts . . . . .	6	April 22, 1870	April 22, 1892	\$30,000 00	April and October.
“ . . . . .	6	March 10, 1875	March 10, 1894	47,000 00	March and September.
Municipal Bonds, \$1,000 each . . . . .	5	July 1, 1875	July 1, 1895	34,000 00	January and July.
Water Bonds, \$1,000 each . . . . .	6	July 1, 1875	July 1, 1905	600,000 00	January and July.
“ “ \$1,000 each . . . . .	5	July 1, 1875	July 1, 1906	250,000 00	January and July.
“ “ \$1,000 each . . . . .	4	Oct. 1, 1880	Oct. 1, 1910	100,000 00	April and October.
“ “ \$1,000 each . . . . .	4	Oct. 1, 1884	Oct. 1, 1914	100,000 00	April and October.
“ “ \$1,000 each . . . . .	4	Oct. 1, 1887	Oct. 1, 1917	100,000 00	April and October.
“ “ \$1,000 each . . . . .	4	Oct. 1, 1888	Oct. 1, 1918	100,000 00	April and October.
“ “ \$1,000 each . . . . .	4	Oct. 1, 1890	April 1, 1920	100,000 00	April and October.
Public Park Bonds, \$1,000 each . . . . .	4	June 14, 1890	April 1, 1920	100,000 00	April and October.
Schoolhouse Notes, \$5,150 each . . . . .	4	Aug. 14, 1890	April 1, 1920	50,000 00	April and October.
School Loan Bonds, \$1,000 each . . . . .	4	June 1, 1883	April 1, 1908	25,000 00	April and October.
School Notes, \$4.50 each . . . . .	4	Jan. 25, 1884	One each year.	20,600 00	January and July.
Newton Free Library Loan, \$4,600 each . . . . .	3½	April 6, 1886	April 1, 1895	44,000 00	April and October.
New Clafin School House Loan . . . . .	3½	Oct. 4, 1887	One each year.	27,000 00	March and September.
“ “ “ “ “ “ . . . . .	4	Oct. 1, 1890	Oct. 1, 1892	4,600 00	April and October.
“ “ “ “ “ “ . . . . .	4	Oct. 1, 1890	Oct. 1, 1893	5,000 00	April and October.
“ “ “ “ “ “ . . . . .	4	Oct. 1, 1890	Oct. 1, 1894	6,000 00	April and October.
“ “ “ “ “ “ . . . . .	4	Oct. 1, 1890	Oct. 1, 1895	6,000 00	April and October.
“ “ “ “ “ “ . . . . .	4	Oct. 1, 1890	Oct. 1, 1896	10,500 00	April and October.
Special Drains and Culverts Loan . . . . .	4	Oct. 1, 1890	Oct. 1, 1897	25,000 00	April and October.
Engine House, Newton Highlands, Loan . . . . .	4	July 11, 1890	Oct. 1, 1896	5,000 00	April and October.
“ “ “ “ “ “ . . . . .	4	Oct. 1, 1890	Oct. 1, 1895	5,000 00	April and October.
“ “ “ “ “ “ . . . . .	4	Oct. 1, 1890	Oct. 1, 1897	6,500 00	April and October.
Land for Almshouse Loan . . . . .	4	Oct. 1, 1890	Oct. 1, 1895	7,600 00	April and October.
Newton Cottage Hospital Loan . . . . .	4	Oct. 1, 1890	Oct. 1, 1896	10,000 00	April and October.
				\$1,724,800 00	

**REPORT OF SINKING FUND COMMISSIONERS.**

The Sinking Fund Commissioners of the City of Newton beg leave to report to the City Council their doings for 1890, as follows:—

**Water Debt Sinking Fund.**

On hand in cash and securities at par Jan. 1,	
1890 . . . . .	\$287,330 40
Received interest on securities, loans, and	
bank deposits . . . . .	12,189 25
Received appropriation by the city for 1890 .	22,000 00
	<hr/>
	\$321,519 65

Invested as follows:—

City of Newton 5 per cent.	
water bonds, due July 1,	
1906 . . . . .	\$73,000 00
City of Newton 4 per cent.	
water bonds due Oct. 1,	
1910 . . . . .	75,000 00
City of Newton 4 per cent.	
water bonds, due April 1,	
1914 . . . . .	65,000 00
City of Newton 4 per cent.	
water bonds, due Oct. 1,	
1917 . . . . .	17,000 00
City of Newton 4 per cent.	
water bonds, due Oct. 1,	
1918 . . . . .	22,000 00
City of Newton 4 per cent.	
school note, due Jan. 25,	
1894 . . . . .	5,150 00
	<hr/>
<i>Amount carried forward</i>	\$257,100 00

<i>Amount brought forward,</i>	\$257,100 00	
City of Newton, 4 per cent. Fire Department, due Oct. 1, 1896 . . . . .	5,000 00	
Cash on deposit in National Revere Bank . . . . .	492 24	
Cash on deposit in Everett National Bank . . . . .	52 41	
Coupons on 5 per cent. water bonds, due Jan. 1, 1891 (since collected) . . . . .	1,825 00	
Boston & Maine R. R. note, due Dec. 1, 1891, interest semi-annually at 4 1-2 per cent. per annum . . . . .	57,000 00	
	<hr/>	\$321,519 65

#### City Debt Sinking Fund.

On hand in cash Jan. 1, 1890 . . . . .	\$306 31	
Received interest on bank deposit . . . . .	8 97	
Received appropriation by the city for 1891 . . . . .	22,000 00	
	<hr/>	\$22,315 28
Paid City Treasurer to retire note due April 22, 1890 . . . . .	20,000 00	
	<hr/>	\$2,315 28

Invested as follows:—

Boston & Maine R. R. note, due Dec. 1, 1891, with interest semi-annually at 4 1-2 per cent. per annum, . . . . .	\$2,000 00	
Cash on deposit in Everett National Bank . . . . .	315 28	
	<hr/>	\$2,315 28

**School Loan Sinking Fund.**

On hand in cash and securities at par Jan. 1, 1890 . . . . .	\$18,480 74
Received interest on securities, loans, and bank deposits . . . . .	708 02
Received appropriation by the city for 1890 .	4,000 00
	<hr/>
	\$23,188 76

Invested as follows:—

City of Newton 4 per cent. water bonds, due April 1, 1914 . . . . .	\$4,000 00
City of Newton 4 per cent. water bonds, due Oct. 1, 1917 . . . . .	5,000 00
City of Newton 4 per cent. water bonds, due Oct. 1918 . . . . .	5,000 00
Boston & Maine R. R. note, due Dec, 1, 1891, interest at 4 1-2 per cent. per annum, payable semi-an- nually . . . . .	9,000 00
Cash on deposit in National Revere Bank . . . . .	188 76
	<hr/>
	\$23,188 76

**Public Park Sinking Fund.**

On hand in cash and securities at par Jan. 1, 1890 . . . . .	\$15,250 15
Received interest on securities and loans .	592 00
	<hr/>
	\$15,842 15
	<hr/>
<i>Amount carried forward</i>	\$15,842 15

<i>Amount brought forward,</i>		\$15,842 15
Invested as follows :—		
City of Newton 4 per cent. water bonds, due April 1, 1914 . . . . .	\$12,000 00	
City of Newton 4 per cent. water bonds, due April 1, 1917 . . . . .	2,000 00	
Boston & Maine R. R. note, due Dec. 1, 1891, interest at 4 1-2 per cent. payable semi-annually . . . .	1,000 00	
Cash on deposit in National Revere Bank . . . . .	842 15	
		<hr/> \$15,842 15

In April last we paid the City Treasurer \$20,000 from the City Debt Sinking Fund, to enable him to retire a note of the same amount, due April 22, 1890.

Since then we have bought from the city a note issued on account of the Fire Department for \$5,000, due Oct. 1, 1896, bearing 4 per cent. interest semi-annually, for the Water Debt Sinking Fund, and on the first day of December last we loaned all of our spare funds of the different sinking funds to the Boston and Maine R. R. Co. for one year at 4 1-2 per cent., amounting to \$69,000.00 as per above statements.

We also reported to the City Council in October, 1890, that there should be appropriated for the year 1891 as follows :—

For the Water Debt Sinking Fund . . . .	\$23,000 00
For the City Debt Sinking Fund . . . .	29,000 00
For the School Loan Sinking Fund . . . .	4,000 00

Respectfully submitted,

GEORGE S. BULLENS,  
GEORGE C. LORD,  
ALDEN SPEARE.

NEWTON, Jan. 1, 1891.

**REPORT OF THE TRUSTEES OF THE READ FUND.**

In accordance with Ordinance XLIV., Section 3, we beg leave to report to the City Council as follows:—

Amount of interest collected for 1890 . . .	\$1,600 00
Less paid to the City of Newton . . .	1,600 00
	<hr/>

This fund is \$40,000.00, and is invested in a note of the City of Newton dated Nov. 29, 1890, on 12 months with interest semi-annually at 4 1-2 per cent. per annum.

GEORGE S. BULLENS,  
ALDEN SPEARE,  
GEORGE C. LORD,

*Trustees of the Read Fund.*

NEWTON, Jan. 1, 1891.

**STATEMENT OF THE KENRICK FUND.**

The following is a statement of this fund and its income, Jan. 1, 1891:—

Amount invested . . . . .	\$1,250 00
Cash uninvested . . . . .	2,750 00
	<hr/>
Total fund . . . . .	\$4,000 00
Balance income on hand Jan.	
1, 1890 . . . . .	\$115 00
Income received 1890 . . . . .	119 16
	<hr/>
	\$234 16
Amount distributed . . . . .	171 66
	<hr/>
Balance . . . . .	\$62 50

The distribution of the income of this fund has been made in accordance with the terms of the donor, to persons entitled to its benefits.

**TAXES AND TAXABLE VALUATION.**

The following will show the valuation of the property of the city on which taxes were assessed for the year 1890, with the amount of taxes and rate of taxation:—

Value of real estate . . . . .	\$26,640,500 00
Value of personal estate . . . . .	9,518,525 00
	<hr/>
	\$36,159,025 00
Tax received for corporation stocks . . . . .	\$50,278 61
Tax received for bank stocks . . . . .	14,471 89
	<hr/>
	\$64,750 50
City appropriations for current expenses . . . . .	\$646,033 81
Deduct estimated receipts for 1890 . . . . .	138,000 00
	<hr/>
	\$508,033 81
State tax . . . . .	\$29,802 50
County tax . . . . .	27,421 81
Overlay . . . . .	8,696 45
	<hr/>
Total assessments . . . . .	\$573,954 57
Rate of taxation, \$14.60 on \$1,000.	

**RECEIPTS.**

The receipts for the year ending Dec, 31, 1890, are shown in the aggregates, as credited in the following accounts:—

Number of Account.	
1. Almshouse . . . . .	\$1,803 03
2. Armory . . . . .	400 00
3. Board of Health . . . . .	120 84
4. City Hall . . . . .	826 00
	<hr/>
<i>Amount carried forward</i>	\$3,149 87



<i>Amount brought forward</i>	\$3,149 87
5. Collector's fees . . . . .	528 18
6. Corporation tax . . . . .	50,278 61
7. Curbing . . . . .	1,154 05
8. Dog tax . . . . .	2,911 94
9. Druggists' license fees . . . . .	22 00
10. Drains and culverts . . . . .	78 43
11. Evening schools . . . . .	9 00
12. Fire Department . . . . .	23 00
13. Funded debt, 4 per cent. water bonds .	183,000 00
14. Funded debt, Claflin school loan . .	33,500 00
15. Funded debt, drainage loan . . . .	25,000 00
16. Funded debt, Newton Cottage Hospital loan . . . . .	10,000 00
17. Funded debt, Fire Department building loan . . . . .	16,500 00
18. Funded debt, Almshouse loan . . .	7,600 00
19. Highways, general repairs . . . .	2,931 03
20. Highways, widening, etc. . . . .	200 00
21. Interest on deposits . . . . .	921 13
22. Interest on taxes . . . . .	2,919 95
23. Interest on water bonds . . . . .	1,986 01
24. Indigent soldiers and sailors . . .	471 00
25. Kenrick Fund income . . . . .	119 16
26. Land damages . . . . .	4,518 50
27. Milk licenses . . . . .	36 00
28. National bank tax . . . . .	14,471 89
29. National bank tax, non-resident . .	1,447 36
30. Newton Free Library, catalogue account	13 00
31. Peddler's licenses . . . . .	88 00
32. Police Department . . . . .	2,146 17
33. Poor out of Almshouse . . . . .	2,128 96
34. Public property . . . . .	765 10

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*Amount carried forward,* \$368,918 34

<i>Amount brought forward</i>	\$368,918 34
35. Premium on notes sold . . . . .	1,016 16
36. Premium on tax sale . . . . .	647 00
37. Record and other fees . . . . .	389 70
38. Read Fund income . . . . .	1,662 05
39. Sinking fund commissioners . . . . .	20,000 00
40. School incidentals . . . . .	53 82
41. Ships engaged in foreign trade . . . . .	718 47
42. Soldiers' relief . . . . .	17 50
43. State aid . . . . .	1,132 50
44. Taxes 1884 . . . . .	2 86
45. Taxes 1886 . . . . .	154 80
46. Taxes 1887 . . . . .	329 86
47. Taxes 1888 . . . . .	3,051 81
48. Taxes 1889 . . . . .	86,645 75
49. Taxes 1890 . . . . .	446,706 10
50. Tuition for non resident pupils . . . . .	218 50
51. Temporary loans . . . . .	554,300 00
52. Water construction . . . . .	19,859 09
53. Water meters, rents . . . . .	3,624 58
54. Water Maintenance, meters and service pipe . . . . .	4,156 18
55. Water rates . . . . .	20,058 71
56. Water rate by meters . . . . .	51,123 51
57. Watering streets . . . . .	5 00
<hr/>	
Total receipts	\$1,584,792 29

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### EXPENSES.

The claims of the year ending December 31, 1890, as approved and drawn for in the Auditor's office, are shown in the aggregates as charged to the following accounts:—

Number of  
Account.

1.	Almshouse expenses and repairs . . . . .	\$3,544 98
2.	Almshouse (special) . . . . .	8,600 00
3.	Armory . . . . .	708 35
4.	Assessors . . . . .	7,868 19
5.	Bath house . . . . .	503 25
6.	Books, stationery and printing . . . . .	3,417 29
7.	Board of Health . . . . .	6,692 55
8.	Burial grounds . . . . .	337 13
9.	New Claflin school building . . . . .	32,092 75
10.	City Engineer's Department . . . . .	8,892 10
11.	City Hall expenses . . . . .	2,295 58
12.	Elections and registration of voters . . . . .	4,039 63
13.	Fire Department . . . . .	31,811 50
14.	Funded debt, town note . . . . .	20,000 00
15.	Funded debt, school house note . . . . .	5,150 00
16.	Funded debt, High school building . . . . .	4,500 00
17.	Funded debt, Newton Free Library building . . . . .	4,600 00
18.	Fire alarm striker, Nonantum . . . . .	525 92
19.	Highways, curbing . . . . .	2,964 04
20.	Highways, drains and culverts . . . . .	6,301 68
21.	Highways, drains and culverts (special) . . . . .	22,557 10
22.	Highways, general repairs . . . . .	68,135 40
23.	Highways, gravel land . . . . .	589 35
24.	Highways, land damages . . . . .	4,618 50
25.	Highways, sidewalks and street crossings . . . . .	15,846 99
26.	Highways, widening, reconstruction and improvements . . . . .	25,566 21
27.	Interest on city loans, permanent . . . . .	12,085 37
28.	Interest on city loans, temporary . . . . .	7,509 22
29.	Interest on water bonds . . . . .	66,840 00
30.	Indigent soldiers and sailors . . . . .	980 00

*Amount carried forward*

\$379,573 08

<i>Amount brought forward,</i>	\$379,573 08
31. Kenrick Fund income . . . . .	171 66
32. Memorial Day . . . . .	500 00
33. Miscellaneous expenses . . . . .	6,992 30
34. Newton Free Library . . . . .	10,495 00
35. Newton Cottage Hospital . . . . .	1,500 00
36. Newton Cottage Hospital (special) . . . . .	10,000 00
37. Newton Highlands engine house (special) . . . . .	10,450 00
38. Parks and squares . . . . .	1,780 48
39. Police Department . . . . .	41,175 74
40. Poor out of Almshouse . . . . .	9,277 42
41. Public property . . . . .	11,721 90
42. Premium on tax sale . . . . .	97 00
43. Read Fund income . . . . .	1,579 24
44. Removal of ashes . . . . .	4,432 07
45. Salaries . . . . .	14,500 00
46. Schools, evening . . . . .	780 52
47. Schools, general appropriation . . . . .	108,977 57
48. Schools, incidentals . . . . .	11,915 10
49. Sewerage . . . . .	1,993 86
50. Sinking fund, city debt . . . . .	22,000 00
51. Sinking fund, school loan . . . . .	4,000 00
52. Sinking fund, water bonds . . . . .	22,000 00
53. Soldiers' relief . . . . .	144 00
54. State aid . . . . .	1,077 50
55. Street light department . . . . .	23,920 87
56. Taxes 1890, county . . . . .	27,421 81
57. Taxes 1890, national bank . . . . .	1,436 05
58. Taxes 1890, State . . . . .	29,802 50
59. Temporary loans . . . . .	575,000 00
60. Waban school house . . . . .	250 00
61. Water construction . . . . .	223,120 64
62. Water maintenance . . . . .	14,794 36

*Amount carried forward*

\$1,572,880 67

<i>Amount brought forward</i>	\$1,572,880 67
63. Water meters and service pipe . . .	3,498 42
64. Water rebate on bills . . . . .	425 62
65. Watering streets and water for same . .	6,105 45
66. Watering troughs and drinking posts . .	1,222 03
67. Water, use of hydrants . . . . .	12,240 00
<hr/>	
Total expenses . . . . .	\$1,596,372 19

### STATEMENT IN DETAIL OF RECEIPTS.

#### Almshouse.

Received from N. D. Moody, warden, for the sale of hay, straw, produce, wood, etc. . .	\$1,434 03
Received for board of Charles T. Sawyer and wife . . . . .	225 00
Received for board of Elizabeth Griffeth . . . . .	104 00
Received for board of Mrs. Mel- vin . . . . .	40 00
<hr/>	
Total as per item No. 1 of receipts . .	\$1,803 03

#### Armory.

Received from Commonwealth of Massachu- setts for rent of armory, as per item No. 2 of receipts . . . . .	\$400 00
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#### Board of Health.

Received from sundry persons on account of material and labor, as per item No. 3 of receipts . . . . .	\$120 84
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**City Hall.**

Received for use of hall, etc. . . . .	\$326 00
Received from treasurer of County of Middlesex for rent of police court room . . . . .	500 00
	<hr/>
Total as per item No. 4 of receipts . . . . .	\$826 00

**Collector's Fees.**

Received from John A. Kenrick, Treasurer and Collector of Taxes, for summonses, advertising tax sales, etc., as per item No. 5 of receipts . . . . .	\$528 18
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**Corporation Tax.**

Received from Commonwealth of Massachusetts, as per item No. 6 of receipts . . . . .	\$50,278 61
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**Curbing.**

Received from sundry persons on account of curbing, as per item No. 7 of receipts . . . . .	\$1,154 05
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**Dog Tax.**

Received from treasurer of County of Middlesex for dog tax, as per item No. 8 of receipts . . . . .	\$2,911 94
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**Druggists' License Fees.**

Received from sundry persons for liquor licenses of the sixth class, as per item No. 9 of receipts . . . . .	\$22 00
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### Drains and Culverts.

Received from Board of Health on account of work per- formed by Highway Depart- ment . . . . .	\$55 74	
Received from George E. Stuart for drain pipe, etc. . . . .	22 69	
Total, as per item No. 10 of receipts		\$78 43

### Evening Schools.

Received from M. E. Stevens on account of error in making up teachers' pay-roll, as per item No. 11 of receipts . . . . .		\$9 00
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### Fire Department.

Received from sale of old telegraph poles, old copper, etc., as per item No. 12 of re- ceipts . . . . .		\$23 00
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### Funded Debt—Water Bonds.

April 29. Received from N. W. Harris & Co., for thirty- three City of Newton water bonds, 4 per cent., \$1,000 each, payable Oct. 1, 1918, on account of water construc- tion . . . . .	\$33,000 00	
June 14. Received from W. J. Hayes & Sons, for fifty City of Newton water bonds, 4 per cent., \$1,000 each, paya- ble April 1, 1920, on account of water construction . . . . .	50,000 00	

<i>Amount carried forward</i>	\$83,000 00
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*Amount brought forward,* \$83,000 00

August 14. Received from N.

W. Harris & Co., for one  
hundred City of Newton  
water bonds, 4 per cent.,  
\$1,000 each, payable April 1,  
1920, on account of water  
construction . . . 100,000 00

Total, as per item No. 13 of receipts \$183,000 00

#### **Funded Debt—Clafin School Loan.**

October 1. Received from

Brewster, Cobb & Estabrook,  
for five City of Newton notes,  
4 per cent., payable as fol-

lows: October 1, 1892 . \$5,000 00

October 1, 1893 . . . 6,000 00

October 1, 1894 . . . 6,000 00

October 1, 1895 . . . 6,000 00

October 1, 1896 . . . 10,500 00

for the construction of new

Clafin school building. \_\_\_\_\_

Total, as per item No. 14 of receipts \$33,500 00

#### **Funded Debt—Drainage Loan.**

October 1. Received from Brewster, Cobb &

Estabrook, for City of Newton note, 4  
per cent., payable October 1, 1897, for

the construction of special drains, as per

item No. 15 of receipts . . . \$25,000 00

#### **Funded Debt—Newton Cottage Hospital Loan.**

October 1. Received from Brewster, Cobb &

Estabrook, for City of Newton note, 4



per cent., payable October 1, 1896, for the construction of buildings for contagious diseases, as per item No. 16 of receipts . . . . . \$10,000 00

**Funded Debt—Fire Department Building Loan.**

October 1. Received from Brewster, Cobb & Estabrook, for two City of Newton notes, 4 per cent., payable as follows:  
 October 1, 1895 . . . \$5,000 00  
 October 1, 1897 . . . 6,500 00  
 for Fire Department building, Newton Highlands.

October 1. Received from commissioners of the sinking funds of City of Newton, for City of Newton note, 4 per cent., payable October 1, 1896, for Fire Department building at Newton Highlands . . . . . 5,000 00

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Total, as per item No. 17 of receipts \$16,500 00

**Funded Debt—Almshouse Loan.**

October 1. Received from Brewster, Cobb & Estabrook, for City of Newton note, 4 per cent., payable October 1, 1895, for land on Winchester street for Almshouse buildings, etc., as per item No. 18 of receipts . . . . . \$7,600 00

**Highways—General Repairs.**

Received from sundry persons for crushed stone . . . . .	\$2,366 60	
Received from Almshouse Depart- ment for manure from city stables . . . . .	276 00	
Received from sale of two old horses . . . . .	150 00	
Received for use of road roller . . . . .	75 00	
Received from town of Needham one-half expenses for repairs of Elliot street bridge . . . . .	26 56	
Received from sale of old iron . . . . .	27 01	
Received from sale of oil barrel . . . . .	8 70	
Received from Walworth Mfg. Co., refund of bill . . . . .	1 16	
Total, as per item No. 19 of receipts		\$2,931 03

**Highways—Widening, etc.**

Received from C. F. Crehore, portion of ex- pense for rebuilding wall under his mill, made necessary by the improvement of Washington street, Lower Falls, as per item No. 20 of receipts . . . . .	\$200 00
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**Interest on Deposits.**

Received from Newton National Bank and First National Bank of West Newton, on daily balances, as per item No. 21 of re- ceipts . . . . .	\$921 13
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**Interest on Taxes.**

Received from sundry persons, interest on taxes, as per item No. 22 of receipts . . . . .	\$2,919 95
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**Interest on Water Bonds.**

Received from N. W. Harris & Co., accrued interest on \$33,000 4 per cent. water bonds. . . . .	\$102 67	
Received from W. J. Hayes & Sons, accrued interest on \$50,000 4 per cent. water bonds. . . . .	405 56	
Received from N. W. Harris & Co., accrued interest on \$100,000 4 per cent. water bonds. . . . .	1,477 78	
<hr/>		
Total, as per item No. 23 of receipts		\$1,986 01

**Indigent Soldiers and Sailors.**

Received from Commonwealth of Massachu- setts, on account of aid to sundry persons, under Chapter 279, Acts of 1889, as per item No. 24 of receipts . . . . .	\$471 00
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**Kenrick Fund—Income.**

Balance uninvested Jan. 1, 1890, in city treasury . . . . .	\$2,750 00	
Balance of income on hand Jan. 1, 1890 . . . . .	115 00	
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		\$2,865 00
Income from investments in 1890, as per item No. 25 of receipts . . . . .		119 16
<hr/>		
<i>Amount carried forward</i>		\$2,984 16

<i>Amount brought forward</i>	\$2,984 16
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**Expended.**

Distributed per order Board of Aldermen, as per item No. 31 of expenses . . . . .	\$171 66
Balance income on hand . . . . .	62 50
	<hr/>
	234 16
	<hr/>
Balance uninvested Jan 1, 1891 . . . . .	\$2,750 00

**Land Damages.**

Received from Boston & Albany railroad for land purchased from Horace Cousens and Mellen Bray for widening Union street, Newton Centre, as per item No. 26 of receipts . . . . .	\$4,518 50
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**Milk Licenses.**

Received from agent of Board of Health for milk licenses, as per item No. 27 of receipts . . . . .	\$36 00
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**National Bank Tax.**

Received from Commonwealth of Massachusetts, national bank tax, as per item No. 28 of receipts . . . . .	\$14,471 89
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**National Bank Tax—Non-resident.**

Received from Newton National Bank . . . . .	\$1,028 34
Received from First National Bank, West Newton . . . . .	419 02
	<hr/>
Total, as per item No. 29 of receipts	\$1,447 36

**Newton Free Library—Catalogue Account.**

Received from librarian for sale of catalogues, as per item No. 30 of receipts . . . .	\$13 00
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**Peddler's Licenses.**

Received from sundry persons for licenses, as per item No. 31 of receipts . . . . .	\$88 00
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**Police Department.**

Received from Edward W. Cate, clerk of police court, fees, fees for witnesses, fines, and costs . . . . .	\$1,441 54
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Received from Henry L. Whittle- sey, clerk of police court, fees, fees for witnesses, fines, and costs . . . . .	704 63
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Total, as per item No. 32 of receipts	\$2,146 17
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**Poor out of Almshouse.**

Received from Commonwealth of Massachusetts, for partial support, etc., of sundry per- sons . . . . .	\$690 69
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Received for partial support of J. C. Gipson . . . . .	296 24
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Received for partial support of Elizabeth Elliott . . . . .	266 97
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Received from City of Boston for partial support of sundry per- sons . . . . .	94 75
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<i>Amount carried forward,</i>	\$1,348 65
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<i>Amount brought forward</i>	\$1,348 65
Received from City of Chelsea for partial support of sundry per- sons . . . . .	125 53
Received from City of Waltham for partial support of sundry persons . . . . .	106 83
Received from City of Lowell for partial support of sundry per- sons . . . . .	43 60
Received from City of Somerville for partial support of sundry persons . . . . .	21 00
Received from City of Lawrence for partial support of sundry persons . . . . .	2 00
Received from Town of Needham for partial support of sundry persons . . . . .	70 50
Received from Town of Black- stone for partial support of sundry persons . . . . .	60 00
Received from Town of Wellesley for partial support of sundry persons . . . . .	50 38
Received from Town of Concord for partial support of sundry persons . . . . .	23 05
Received from Town of Pittsfield for partial support of sundry persons . . . . .	20 75
Received from Town of Water- town for partial support of sundry persons . . . . .	9 60
<i>Amount carried forward</i>	<hr/> \$1,881 89

<i>Amount brought forward,</i>	\$1,881 89
Received from Town of Natick for partial support of sundry persons . . . . .	8 00
Received from estate of John Fanning for partial support of Ann Fanning . . . . .	98 04
Received from John Murphy for partial support of Mary Murphy . . . . .	73 20
Received from Nathan Conant for partial support of Susan Conant . . . . .	54 33
Received from sundry persons for aid refunded . . . . .	13 50
<hr/>	
Total, as per item No. 33 of receipts	\$2,128 96

**Public Property.**

Received from D. R. Emerson for land on Pearl street, Ward 1	\$705 10
Received from Auburndale Village Improvement society for rent of old Williams school house . . . . .	50 00
Received for rent of Mason school house hall . . . . .	10 00
<hr/>	
Total, as per item No. 34 of receipts	\$765 10

**Premium on Notes Sold.**

Received from Brewster, Cobb & Estabrook 1 16-100 per cent. premium on \$87,600, as per item No. 35 of receipts . . . . .	\$1,016 16
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**Premium on Tax Sale.**

Received from sundry persons on real estate sale for taxes of 1888, as per item No. 36 of receipts . . . . .	\$647 00
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**Records and Other Fees.**

Received from City Clerk for recording mortgages, marriage certificates, assignments, etc., as per item No. 37 of receipts . . . . .	\$389 70
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**Read Fund Income.**

Received from the trustees of the Read Fund, interest on investments . . . . .	\$1,600 00
Refunded into city treasury amounts approved but not paid on account of poor widows . . . . .	45 00
Received from E. S. Hamblen, chairman, amount unexpended on account of picnic . . . . .	17 05
Total, as per item No. 38 of receipts	\$1,662 05

**Sinking Fund Commissioners.**

Received from the commissioners of the sinking funds of the City of Newton for the payment of note of the town of Newton, as per item No. 39 of receipts . . . . .	\$20,000 00
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**School Incidentals.**

Received from appropriation for school incidentals for paper and expressage, etc., for school reports, as per item No. 40 of receipts . . . . .	\$53 82
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**Ships Engaged in Foreign Trade.**

Received from Commonwealth of Massachusetts on account of ships engaged in foreign trade, as per item No. 41 of receipts	\$718 47
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**Soldiers' Relief.**

Received from Commonwealth of Massachusetts on account of burial expenses, under Chapter 395, Acts of 1889, as per item No. 42 of receipts . . . . .	\$17 50
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**State Aid.**

Received from Commonwealth of Massachusetts on account of sundry persons, under Chapter 301, Acts of 1889, as per item No. 43 of receipts . . . . .	\$1,132 50
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**Taxes of 1884.**

Balance uncollected Dec. 31, 1889	\$1,527 78
Received from sundry persons since Dec. 31, 1889, as per item No. 44 of receipts . . . . .	2 86
	<hr/>
Balance abated by Board of Assessors . . . . .	\$1,524 92

**Taxes of 1886.**

Balance uncollected Dec. 31, 1889 . . . . .	\$2,749 52
Received from sundry persons since Dec. 31, 1889, as per item No. 45 of receipts . . . . .	\$154 80
Abated by Board of Assessors . . . . .	1,542 47
	<hr/>
	1,697 27
	<hr/>
Balance uncollected Dec. 31, 1890 . . . . .	\$1,052 25

**Taxes of 1887.**

Balance uncollected Dec. 31, 1889 . . .	\$2,050 73
Received from sundry persons since Dec. 31, 1889, as per item No. 46 of receipts . . .	329 86
	<hr/>
Balance uncollected Dec. 31, 1890 . . .	\$1,720 87

**Taxes of 1888.**

Balance uncollected Dec. 31, 1889 . . .	\$5,109 10
Received from sundry persons since Dec. 31, 1889, as per item No. 47 of receipts . . .	3,051 81
	<hr/>
Balance uncollected Dec. 31, 1890 . . .	\$2,057 29

**Taxes of 1889.**

Balance uncollected Dec. 31, 1889 . . .	\$93,043 74
Received from sundry persons since Dec. 31, 1889, as per item No. 48 of receipts . . .	86,645 75
	<hr/>
Balance uncollected Dec. 31, 1890 . . .	\$6,397 99

**Taxes of 1890.**

Amount assessed for State tax . . .	\$29,802 50
Amount assessed for county tax . . .	27,421 81
Amount assessed for city tax . . .	475,161 50
Overlay . . . . .	8,696 45
	<hr/>
	\$541,082 26
Received from sundry persons to Dec. 31, 1890, as per item No. 49 of receipts . . .	446,706 10
	<hr/>
Balance uncollected Dec. 31, 1890 . . .	\$94,376 16

**Tuition for Non-resident Pupils.**

Received from sundry non-residents for tuition, as per item No. 50 of receipts . . .	\$218 50
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**Temporary Loans.**

Borrowed during the year, by authority of the  
City Council (in anticipation of taxes),  
for the payment of current expenses:—

Jan. 24.	Potter Lovell Co. at 3	
	1-4 per cent. per annum	. \$25,000 00
Feb. 25.	Potter Lovell Co. at 3	
	1-2 per cent. per annum	. 25,000 00
April 11.	Potter Lovell Co. at	
	3 3-4 per cent. per annum	. 50,000 00
April 23.	Potter Lovell Co. at	
	3 5-8 per cent. per annum	. 50,000 00
May 7.	Potter Lovell Co. at 3	
	1-2 per cent. per annum	. 30,000 00
May 20.	Potter Lovell Co. at 3	
	1-2 per cent. per annum	. 25,000 00
June 9.	Potter Lovell Co. at 3	
	7-8 per cent. per annum	. 20,000 00
June 20.	Potter Lovell Co. at 3	
	3-4 per cent. per annum	. 50,000 00
July 7.	New England Mutual Life Insurance Co. at 3 7-8	
	per cent. per annum	. 30,000 00
July 11.	New England Mutual Life Insurance Co. at 3 7-8	
	per cent. per annum	. 20,000 00
August 2.	Potter Lovell Co. at	
	3 7-8 per cent. per annum	. 75,000 00
August 6.	Potter Lovell Co. at	
	3 7-8 per cent. per annum	. 75,000 00
Nov. 29.	Trustees of Read Fund	
	at 4 1-2 per cent. per annum	40,000 00

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*Amount carried forward,* \$515,000 00

<i>Amount brought forward,</i>	\$515,000 00	
Dec. 18. Brewster, Cobb & Estabrook at 6 per cent. per annum and 1-8 commission .	35,000 00	
Dec. 30. Benjamin S. Newell, guardian, at 5 1-2 per cent. per annum . . . . .	1,500 00	
Dec. 30. Edith C. Newell at 5 1-2 per cent per annum .	1,500 00	
Dec. 30. Elizabeth A. Newell at 5 1-2 per cent. per annum .	1,300 00	
Total, as per item No. 51 of receipts .	\$554,300 00	

#### **Water Meters, Rents.**

Received from sundry persons for rent of meters, as per item No. 53 of receipts .	\$3,624 58
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#### **Water Meters and Service Pipe.**

Received from sundry persons for service pipe, labor, etc., as per item No. 54 of receipts	\$4,156 18
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#### **Water Rates.**

Received from sundry persons for use of water in 1890 by schedule rates, as per item No. 55 of receipts . . . . .	\$20,058 71
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#### **Water Rates by Meters.**

Received from sundry persons for use of water in 1890 by meters, as per item No. 56 of receipts . . . . .	\$51,123 51
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#### **Watering Streets.**

Received from sundry persons, contributors toward expense of watering streets, as per item No. 57 of receipts . . . . .	\$5 00
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**STATEMENT IN DETAIL OF EXPENSES WITH AP-  
PROPRIATIONS, TRANSFERS, AND BALANCES.**

**Almshouse Expenses and Repairs.**

Appropriation . . . . .		\$4,500 00
N. D. Moody, services as warden,	\$700 00	
N. D. Moody, sundry cash pay- ments . . . . .	290 11	
Eliza A. Moody, services as matron,	100 00	
George W. Henderson, services at almshouse . . . . .	144 00	
Maggie J. Henderson, services at almshouse . . . . .	96 00	
John T. Moody, services at alms- house . . . . .	60 00	
Emma L. Moody, services at alms- house . . . . .	36 00	
Thomas Bedgan, services at alms- house . . . . .	22 75	
Frank Stearns, services at alms- house . . . . .	18 00	
Jennie Stearns, services at alms- house . . . . .	12 00	
Dr. James Utley, medical attend- ance . . . . .	41 00	
Dr. Fred. E. Crockett, medical at- tendance . . . . .	2 00	
Sherman N. Sears, medicine .	8 19	
Frank W. Freeman, medicine .	7 25	
George H. Ingraham, medicine .	6 25	
George H. Gregg, funeral ex- penses. . . . .	17 00	
James McGourty, funeral ex- penses . . . . .	10 00	
<i>Amounts carried forward,</i>	<u>\$1,570 55</u>	<u>\$4,500 00</u>

<i>Amounts brought forward</i>	\$1,570 55	\$4,500 00
Crocker & Eldridge, groceries . . .	481 99	
H. A. Sherman, groceries . . .	114 96	
Otis E. Bowen, Jr., groceries . . .	33 10	
V. A. Pluta, provisions . . .	272 49	
L. F. Mason, provisions . . .	66 94	
Armour & Co., beef . . .	37 13	
Frank Linnell, fish and oysters . . .	61 85	
George H. Ellis, ice . . .	69 87	
Water Department, use of water . . .	65 88	
J. W. Mitchell, coal . . .	235 03	
H. W. Crowell, grain . . .	29 92	
C. F. Eddy & Co., grain . . .	15 47	
M. E. Society, rent of pew . . .	30 00	
N. D. Moody, covered wagon . . .	30 00	
Wm. H. Mague, house offal . . .	41 00	
David Jackson, manure . . .	33 00	
J. C. Farrar, blacksmithing . . .	74 80	
J. A. Nugent, blacksmithing . . .	9 27	
Oliver Morse & Son, grinding corn . . .	6 10	
H. H. Hunt, material and labor . . .	6 73	
E. W. Hodgson, material and labor . . .	6 50	
M. S. Hodgson, material and labor . . .	6 00	
Charles J. Polley, material and labor . . . . .	3 40	
J. O. Evans' Son, material and labor . . . . .	3 18	
Everett E. Moody, supplies . . .	172 98	
O. F. Lucas, supplies . . .	43 81	
Schlegel & Fottler, supplies . . .	16 60	
H. C. Pulsifer, supplies . . .	6 43	
Total, as per item No. 1 of expenses, . . .		3,544 98
Balance unexpended, transferred into excess and deficiency account . . . . .		\$955 02

**Alms-house—(Special.)**

Paid Thomas Ranney for 19 acres of land on Winchester street	\$7,600 00	
Paid estate John Doyle for 5 acres of land additional	1,000 00	
Total, as per item No. 2 of expenses		\$8,600 00

**Armory Expenses.**

Appropriation		\$1,000 00
B. S. Wetherbee, services as janitor, etc.	\$350 00	
Newton & Watertown Gas Light Co., gas	216 40	
C. F. Eddy & Co., coal	69 73	
Albert Brackett & Son, coal and wood	25 92	
C. F. Eddy & Co., wood	5 00	
Boston & Albany R. R. Co., use of gravel pit	25 00	
Water Department, use of water	12 00	
W. J. Henderson, material and labor	2 30	
Edward Pike, material and labor	2 00	
Total, as per item No. 3 of expenses		708 35
Balance unexpended, transferred into excess and deficiency account		\$291 65

**Assessors' Department.**

Appropriation	\$5,800 00	
Additional appropriation by order of City Council	2,000 00	
<i>Amount carried forward</i>		\$7,800 00

<i>Amount brought forward</i>		\$7,800 00
Samuel M. Jackson, Chairman		
Board of Assessors . . . .	\$900 00	
Howard B. Coffin, Assessor . .	900 00	
Charles A. Miner, Assessor and Clerk of Board . . . . .	1,500 00	
Thomas C. Parks, Assistant As- sessor, Ward 1 . . . . .	60 00	
A. A. Savage, Assistant Assessor, Ward 2 . . . . .	208 00	
Willard P. Plimpton, Assistant Assessor, Ward 3 . . . .	132 00	
Bernard Early, Assistant As- sessor, Ward 4 . . . . .	105 00	
Otis Pettee, Assistant Assessor, Ward 5 . . . . .	212 00	
George Warren, Assistant As- sessor, Ward 6 . . . . .	16 00	
Edward W. Cobb, Assistant As- sessor, Ward 7 . . . . .	202 00	
Miss Caroline M. Jordan, clerical assistance . . . . .	211 00	
Miss Ruth G. Leavitt, clerical as- sistance . . . . .	182 00	
Miss Nellie M. Heywood, clerical assistance . . . . .	164 00	
Miss L. A. Richardson, clerical assistance . . . . .	52 00	
Miss Carrie Blodgett, clerical as- sistance . . . . .	50 00	
I. W. Hastings, work on plans for block system . . . . .	240 00	
Fred. H. Barnes, work on plans for block system . . . . .	225 00	
<i>Amounts carried forward</i>	\$5,359 00	\$7,800 00



<i>Amounts brought forward</i>	\$5,359 00	\$7,800 00
Edward H. Brooks, work on plans for block system . . . .	208 50	
Wm. P. Morse, work on plans for block system . . . .	192 00	
E. E. Young, work on plans for block system . . . .	180 00	
A. O. Doane, work on plans for block system . . . .	144 00	
F. C. Moore, work on plans for block system . . . .	110 00	
David Hinckley, work on plans for block system . . . .	102 00	
Henry Jefferson, work on plans for block system . . . .	70 00	
G. A. Harris, work on plans for block system . . . .	66 00	
Charles Temperley, work on plans for block system . . . .	66 00	
E. F. Adams, work on plans for block system . . . .	60 00	
F. W. Upham, work on plans for block system . . . .	53 34	
H. A. Hanscom, work on plans for block system . . . .	47 00	
Dana Libbey, work on plans for block system . . . .	42 00	
H. H. Applin, work on plans for block system . . . .	36 00	
Ernest Harvey, work on plans for block system . . . .	30 00	
Albert Elder, work on plans for block system . . . .	10 75	
<i>Amounts carried forward</i>	<hr/> \$6,776 59	<hr/> \$7,800 00

<i>Amounts brought forward</i>	\$6,776 59	\$7,800 00
H. W. Mason, abstract of deeds .	217 20	
Kern & McLeod, abstract of deeds	15 00	
Charles A. Miner, sundry cash expenses . . . . .	53 05	
Albert F. Noyes et al., sundry cash expenses . . . . .	26 57	
Samuel M. Jackson, use of team	80 00	
Howard B. Coffin, use of team .	50 00	
Fred. Barker, printing . . .	195 88	
Fanning Printing Co., printing .	42 50	
Rockwell & Churchill, printing .	22 50	
Newton Journal, advertising, etc.	61 00	
Newton Graphic, advertising, etc.	59 25	
C. L. Bourne, stamps, etc. . . .	27 85	
Samuel Ward Co., blank books .	85 20	
J. B. Beers & Co., Atlas of Newton . . . . .	10 00	
W. W. White & Co., atlas . . .	6 25	
Banker & Tradesman, subscription . . . . .	5 00	
C. J. Buffam & Co., binding books	3 00	
Frost & Adams, supplies . . .	43 75	
Aaron R. Gay & Co., supplies .	38 59	
Bliss Brothers, supplies . . .	24 39	
E. B. Stillings & Co., supplies .	10 50	
Rice, Kendall & Co., supplies .	9 12	
Anthony S. Morse, supplies . .	4 50	
C. H. Jennison, expressage . .	50	

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Total, as per item No. 4 of expenses .	7,868 19
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Amount overdrawn, transferred into excess and deficiency account . . . . .	\$68 19
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**Bath House.**

Appropriation . . . . .		\$600 00
Charles Tapply, care of bath house	\$92 00	
Garey & English, contract and building . . . . .	400 00	
Peter Gray, lanterns . . . . .	6 75	
R. Beeching & Co., life preserver	4 50	
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Total, as per item No. 5 of expenses .		503 25
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Balance unexpended, transferred into excess and deficiency account . . . . .		\$96 75

**Books, Stationery and Printing.**

Appropriation . . . . .		\$4,000 00
Fanning Printing Co., printing, etc. . . . .	\$698 08	
The Newton Graphic, printing, etc. . . . .	690 85	
Newton Journal, printing, etc. .	107 50	
Rockwell & Churchill, printing, etc. . . . .	55 75	
Fred. G. Barker, printing, etc. .	5 50	
Charles H. Stacy, stamps, etc. .	435 11	
J. B. Turner, stamps . . . . .	3 25	
Newton Post Office, stamped en- velopes, etc. . . . .	88 00	
Pulsifer, Jordan & Pfaff, paper .	294 06	
Robert S. Rice, paper . . . . .	109 20	
J. Willard Rice, paper . . . . .	100 95	
American Bank Note Co., check books . . . . .	136 00	
<hr/>		
<i>Amounts carried forward,</i>	\$2,724 25	\$4,000 00

<i>Amounts brought forward,</i>	\$2,724 25	\$4,000 00
Boston Daily Advertiser, advertising, . . . . .	45 70	
J. Q. Fuller, directories . . .	30 00	
Benjamin F. Otis, record books, paper, etc. . . . .	27 64	
Sanson's Line Pen Co., pens . .	27 00	
Derby & Kilmer Desk Co., letter press, etc. . . . .	18 50	
G. & C. Merriam & Co., book . .	9 25	
Engineering & Building Record, subscription . . . . .	4 00	
I. F. Kingsbury, sundry cash expenses . . . . .	4 35	
C. H. Jenison, expressage . . .	4 69	
George L. Pearson, expressage . .	2 40	
J. D. F. Brooks, binding books . .	3 25	
Aaron R. Gay & Co., supplies . .	198 09	
Thomas Groom & Co., supplies . .	156 08	
Hooper Lewis & Co., supplies . .	35 55	
J. L. Fairbanks & Co., supplies . .	29 00	
M. R. Warren, supplies . . . .	16 75	
J. W. Whittemore & Co., supplies .	14 65	
C. J. Bailey & Co., supplies . . .	14 28	
Samuel Ward Co., supplies . . .	11 69	
Wyckoffs, Seamans & Benedict, supplies . . . . .	9 65	
H. C. Dimond & Co., supplies . .	6 29	
Asa L. Shipman's Sons, supplies . .	6 25	
The Educational Supply Co., supplies . . . . .	4 13	
A. Storrs & Bement Co., supplies .	2 82	
Samuel Hobbs & Co., supplies . .	2 75	
<i>Amounts carried forward</i>	<hr/> \$3,409 01	<hr/> \$4,000 00

## EXPENSES IN DETAIL.

63

<i>Amounts brought forward,</i>	\$3,409 01	\$4,000 00
Henry A. Sheppard, supplies .	2 63	
Winckley, Dresser & Co., supplies	2 50	
Sundry small bills . . . .	3 15	

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Total, as per item No. 6 of expenses .	3,417 29
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Balance unexpended, transferred into excess and deficiency account . . . .	\$582 71
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**Board of Health.**

Appropriation . . . . .	\$5,500 00	
Additional appropriation by order of City Council . . . . .	1,500 00	
		\$7,000 00

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W. S. French, services as agent of board . . . . .	\$1,250 00
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Isaac F. Kingsbury, services as agent of board . . . . .	50 00
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Charles H. Johnson, services for agent . . . . .	173 00
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Madison Bunker, services for agent . . . . .	4 00
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W. H. Mague, collecting house offal . . . . .	2,760 00
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Stephen F. Cate, use of teams .	310 00
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George W. Bush, use of teams .	10 00
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J. McSherry, use of teams . .	2 50
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W. S. French, serving summons .	225 00
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Rodney M. Lucas, serving sum- mons . . . . .	109 20
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Martin C. Laffie, serving sum- mons . . . . .	46 74
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<i>Amounts carried forward</i>	\$4,940 44	\$7,000 00
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<i>Amounts brought forward</i>	\$4,940 44	\$7,000 00
Fanning Printing, printing reports . . . . .	34 75	
Newton Journal, advertising . . . . .	30 00	
The Newton Graphic, advertising, . . . . .	24 00	
E. C. White, reports of State Board of Health . . . . .	25 00	
Thomas M. Drown, analysis of water . . . . .	25 00	
Arthur Hudson, analysis of water . . . . .	5 00	
Mrs. Sarah Stone, rent of house . . . . .	55 00	
Dr. D. Waldo Stearns, vaccinations . . . . .	24 25	
Dr. Fred. E. Crockett, vaccinations . . . . .	11 50	
Dr. H. P. Bellows, vaccinations . . . . .	3 50	
Dr. Edward P. Scales, vaccinations . . . . .	2 50	
Dr. J. F. Frisbee, vaccinations . . . . .	2 25	
Dr. J. George Taylor, vaccinations . . . . .	2 00	
Dr. J. R. Dean, vaccinations . . . . .	1 00	
Dr. Samuel Eaton, medical attendance . . . . .	11 00	
Stephen F. Cate, return of deaths . . . . .	94 00	
Wm. S. French, sundry cash expenses . . . . .	105 48	
Thomas F. Mague, labor on Elm street drain . . . . .	765 85	
Wm. Donahoe, labor on Elm street drain . . . . .	19 50	
Thomas F. Mague, labor on Cherry street drain . . . . .	226 50	
<i>Amounts carried forward</i>	<hr/> \$6,408 52	<hr/> \$7,000 00

<i>Amounts brought forward,</i>	\$6,408 52	\$7,000 00
C. H. Dolan, labor on Elm street drain . . . . .	15 76	
Wm. H. Leatherbee & Son, lumber, Elm street drain . . . .	23 21	
Noah Prescott, stone for drain . . . . .	41 28	
Charles E. Eddy, drain, Oakland street, Ward 1 . . . . .	62 50	
Wm. Lowe, care John Mahoney . . . . .	4 00	
Charles H. Jenison, expressage . . . . .	9 25	
H. H. Hunt, material and labor . . . . .	6 50	
M. C. Higgins, material and labor . . . . .	2 88	
Wm. H. French & Co., material and labor . . . . .	2 40	
Weeks & Potter, supplies . . . . .	51 56	
George H. Ingraham, supplies . . . . .	21 33	
Joseph Lee, supplies . . . . .	7 25	
Jordan, Marsh & Co., supplies . . . . .	3 60	
Edward Farrell et al., burying dogs, etc. . . . .	24 00	
Sundry small bills . . . . .	8 51	

Total, as per item No. 7 of expenses, . . . . .	6,692 55
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Balance unexpended, transferred into excess and deficiency account . . . . .	\$307 45
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**Burial Grounds.**

Appropriation . . . . .	\$400 00
Services of Henry Ross, Superintendent . . . . .	\$200 00
Material and labor . . . . .	131 43
Use of tools, etc. . . . .	5 70

Total, as per item No. 8 of expenses . . . . .	337 13
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Balance unexpended, transferred into excess and deficiency account . . . . .	\$62 87
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**New Claffin School Building—(Special Appropriation.)**

H. H. Hunt, construction of building . . . . .	\$28,242 75	
Fuller & Warren Co., heating and ventilating building . . .	3,000 00	
J. Merrell Brown, architect . . . . .	850 00	
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Total, as per item No. 9 of expenses . . .		\$32,092 75

**City Engineer's Department.**

Appropriation . . . . .	\$8,050 00	
Additional appropriation by order of City Council . . . . .	850 00	
<hr/>		\$8,900 00
Albert F. Noyes, services as City Engineer . . . . .	\$2,500 00	
Fred. H. Barnes, services as Assistant City Engineer . . .	758 00	
I. W. Hastings, services as Assistant City Engineer . . .	124 00	
William P. Morse, services as Assistant City Engineer . . .	127 00	
David Hinckley, services as Assistant City Engineer . . .	542 00	
Henry Jefferson, services as Assistant City Engineer . . .	412 33	
Mrs. Stella J. Vose, clerical and stenographic services . . .	594 00	
F. W. Upham, services . . . . .	284 00	
F. C. Moore, services . . . . .	261 34	
Dana Libbey, services . . . . .	215 00	
Ernest Harvey, services . . . . .	210 00	
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<i>Amounts carried forward,</i>	\$6,027 67	\$8,900 00



<i>Amounts brought forward</i>	\$6,027 67	\$8,900 00
A. O. Doane, services . . .	182 65	
Albert H. Elder, services . . .	90 44	
Wm. E. Leonard, services . . .	82 24	
E. E. Young, services . . .	65 00	
H. D. Woods, services, . . .	64 00	
Geo. O. Hastings, services . . .	63 00	
H. H. Applin, services . . .	58 00	
H. A. Hanscom, services . . .	42 00	
Albert Harris, services . . .	38 00	
Charles Temperley, services . . .	26 67	
E. F. Adams, services . . .	24 00	
E. H. Brooks, services . . .	18 00	
C. R. Brown, services . . .	3 28	
Incidental office and traveling ex- penses of Engineer and as- sistants . . . . .	337 53	
Charles G. Tinkham, exchange of horses . . . . .	275 00	
Buff & Berger, transists, etc. . .	428 45	
F. W. Dean, planimeter . . .	43 20	
Chas. C. Hutchinson, instruments	16 00	
Stephen F. Cate, board of horse .	300 05	
Chas. G. Tinkham, board of horse	285 75	
Andrew Peters, blacksmithing . .	52 39	
Charles A. Cole, blacksmithing . .	12 00	
J. A. Nugent, blacksmithing . . .	10 65	
Alex. Griswold, material and labor	44 15	
Ward & Co., material and labor .	31 80	
H. H. Hunt, material and labor . .	7 76	
W. Rand, material and labor . . .	7 20	
Clark Mfg. Co., material and labor	4 50	
C. H. Jenison, expressage . . . .	4 45	
<i>Amounts carried forward</i>	<hr/> \$8,645 83	<hr/> \$8,900 00

<i>Amounts brought forward,</i>	\$8,645 83	\$8,900 00
Frost & Adams, supplies .	103 98	
Chandler & Farquhar, supplies .	54 30	
W. W. White & Co., supplies .	28 80	
James E. Moody, supplies .	17 50	
Whitney & Wilson, supplies .	8 06	
Dame, Stoddard & Kendall, supplies . . . . .	6 25	
Wadsworth, Howland & Co., supplies . . . . .	5 25	
M. E. Baldwin, supplies . .	5 00	
Alonzo Whitney, supplies . .	4 35	
Chas. H. Stacy, telegrams . .	6 83	
Sundry small bills . . . .	5 95	

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Total, as per item No. 10 of expenses .		8,892 10
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Balance unexpended, transferred into excess and deficiency account . . . .		\$7 90
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### City Hall Expenses.

Appropriation . . . . .		\$2,300 00
Newton & Watertown Gas Light Co., gas . . . . .	\$663 40	
Newton & Watertown Gas Light Co., electric light . . . .	27 47	
J. D. Wellington, sundry cash expenses . . . . .	522 85	
C. F. Eddy & Co., coal . . . .	480 97	
Water Department, use of water . . . . .	49 64	
A. D. Lougee, ice . . . . .	40 00	
Almshouse department, wood . . . . .	9 00	

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<i>Amounts carried forward,</i>	\$1,793 33	\$2,300 00
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<i>Amounts brought forward</i>	\$1,793 33	\$2,300 00
John H. Pray Sons & Co., carpets	164 84	
Joel Goldwaite & Co., rug . . .	6 83	
Franklin Crosby, rug . . . . .	3 00	
Newton Odorless Excavating Co., cleaning cesspool . . . . .	10 00	
C. H. Jenison, expressage . . . .	13 50	
C. E. Hastings, repairing clock .	4 50	
H. H. Hunt, material and labor .	158 43	
Wm. H. French & Co., material and labor . . . . .	31 93	
Dalby & Bailey, material and labor . . . . .	30 00	
F. H. Humphrey, agt., material and labor . . . . .	24 98	
Ralph Davenport, material and labor . . . . .	9 00	
G. S. Dalby & Co., material and labor . . . . .	8 00	
F. T. Burgess, material and labor	7 00	
Wm. F. Lill, material and labor .	7 00	
Charles A. Cole, material and labor . . . . .	3 75	
Wm. H. Marden, material and labor . . . . .	2 75	
W. R. Hanks, material and labor	2 09	
A. E. Burton & Co., supplies . .	4 00	
Jones, McDuffee & Stratton, sup- plies . . . . .	3 75	
R. Hollings & Co., supplies . .	3 50	
C. J. Bailey & Co., supplies . .	3 40	
Total, as per item No. 11 of expenses .		2,295 58
Balance unexpended, transferred into excess and deficiency account . . . . .		\$4 42



**Elections and Registration of Voters.**

Appropriation . . . . .	\$2,780 00	
Additional appropriation by order of City Council . . . . .	1,000 00	
		<hr/> \$3,780 00
George E. Bridges, registrar . . . . .	\$250 00	
George H. Bourne, registrar . . . . .	100 00	
Amos L. Hale, registrar . . . . .	100 00	
Isaac F. Kingsbury, registrar . . . . .	250 00	
Carrie Blodgett, clerical services . . . . .	48 00	
Fred H. Barnes, clerical services . . . . .	15 00	
John C. Brimblecom, clerical services . . . . .	5 00	
Fanning Printing Co., voting lists, ballots, etc. . . . .	800 48	
Newton Journal, type for voting list, etc. . . . .	411 75	
Newton Graphic, advertising, etc. . . . .	154 00	
Drew, Allis & Co., maps of New- ton . . . . .	65 00	
Newton Journal, storage of type . . . . .	35 00	
S. P. Whitman, storage . . . . .	12 00	
Aaron R. Gay & Co., supplies . . . . .	39 00	
H. C. Dimond & Co., supplies . . . . .	14 51	
C. W. Turner, use Nonantum Hall . . . . .	30 00	
Newton Centre Associates, use of hall . . . . .	30 00	
E. Stevens, use of Lincoln Hall . . . . .	25 00	
C. H. Tainter, use of Tremont Hall . . . . .	25 00	
James A. Early, use of Boyden Hall . . . . .	25 00	
	<hr/>	
<i>Amounts carried forward</i>	\$2,434 74	<hr/> \$3,780 00

<i>Amounts brought forward</i>	\$2,434 74	\$3,780 00
George H. Gregg, use of Central Hall . . . . .	20 00	
M. C. Laffie, serving notices, etc.	293 99	
Rodney M. Lucas, serving notices	30 00	
Stephen F. Cate, use of teams .	84 00	
H. A. Spear, use of teams . .	19 00	
Central Stables, use of teams .	18 00	
J. Frank Makee, use of teams .	17 50	
Henry C. Daniels, use of teams .	16 50	
John Purcill, use of teams . .	8 00	
S. L. Pratt, use of teams . . .	7 00	
Fitzgerald Bros., use of teams .	5 00	
C. G. Tinkham, use of teams . .	4 00	
John H. Carpingier, use of teams	3 00	
John T. Hill, use of teams . .	2 00	
H. H. Hunt, material and labor .	108 63	
M. C. Laffie, material and labor .	46 27	
J. L. Randall, labor, etc. . . .	7 00	
John Ghant, labor, etc. . . . .	6 00	

## ELECTION OFFICERS—WARD 1.

Herbert H. Powell, warden . . .	\$10 00
John A. Evans, deputy warden . .	6 00
Seth C. Stevens, clerk . . . . .	10 00
George R. Ashton, deputy clerk .	6 00
John W. Keeffe, inspector . . . .	10 00
Marshall L. Blanchard, inspector	10 00
Walter S. Ring, inspector . . . .	10 00
Wm. F. Grace, inspector . . . . .	5 00
Francis H. Murray, inspector . .	5 00
Albert P. Bugbee, deputy in- specter . . . . .	6 00

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<i>Amounts carried forward</i>	\$3,208 63	\$3,780 00
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<i>Amounts brought forward</i>	\$3,208 63	\$3,780 00
Herbert L. Wood, deputy in- specter . . . . .	6 00	
Arthur S. Buckingham, deputy inspector . . . . .	3 00	

## WARD 2, PRECINCT 1.

H. P. Dearborn, warden . . .	10 00	
Charles B. Lowell, deputy war- den and inspector . . .	8 00	
Louis E. G. Green, clerk . . .	5 00	
Uriah H. Dyer, clerk and deputy clerk . . . . .	8 00	
S. K. Billings, deputy clerk . .	3 00	
Lawrence H. Cranitch, inspector	10 00	
Louis Watson, inspector . . .	5 00	
James D. Billings, inspector . .	10 00	
Edward W. Rumery, inspector . .	9 00	
Walter Conners, deputy inspector	4 00	
Theodore G. Cutler, deputy in- specter . . . . .	6 00	
Arthur C. Watkins, deputy in- specter . . . . .	6 00	
Andrew J. McFadden, deputy in- specter . . . . .	5 00	

## WARD 2, PRECINCT 2.

Willard S. Higgins, warden . .	10 00	
Albert H. Sisson, deputy warden	6 00	
James W. Page, clerk . . .	10 00	
James H. Page, deputy clerk . .	6 00	
W. W. Palmer, inspector . . .	10 00	
Elbridge Bradshaw, inspector . .	10 00	
John W. Cotton, inspector . . .	10 00	

<i>Amounts carried forward</i>	\$3,368 63	\$3,780 00
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## EXPENSES IN DETAIL.

73

<i>Amounts brought forward</i>	\$3,368 63	\$3,780 00
John H. Williams, inspector .	10 00	
Chas. H. Johnson, deputy in- specter . . . . .	6 00	
Walter S. Cunningham, deputy inspector . . . . .	6 00	
George M. Bridges, deputy in- specter . . . . .	6 00	
A. A. Savage, deputy inspector .	6 00	

## WARD 3, PRECINCT 1.

Harvey C. Wood, warden . . .	10 00	
Frank E. Hunter, deputy warden	6 00	
George M. Cox, clerk . . . .	10 00	
Eugene F. Conroy, deputy clerk	6 00	
Arthur R. Coe, inspector . . .	10 00	
Edward L. Lemon, inspector . .	10 00	
George L. V. Tyler, inspector . .	10 00	
Frank H. Humphrey, inspector .	10 00	
Charles A. Wyman, deputy in- specter . . . . .	6 00	
Waldo. L. Plimpton, deputy in- specter . . . . .	6 00	
Frank C. Sheridan, deputy in- specter . . . . .	6 00	
John W. Gaw, deputy inspector .	6 00	

## WARD 4, PRECINCT 1.

George E. Johnson, warden . . .	10 00	
Albert F. Tucker, deputy warden	6 00	
G. Lyman Snow, clerk . . . .	10 00	
Colon S. Ober, deputy clerk . .	3 00	
Henry Washburn, inspector . .	10 00	

<i>Amounts carried forward</i>	\$3,537 63	\$3,780 00
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<i>Amounts brought forward</i>	\$3,537 63	\$3,780 00
Fred Plummer, inspector . . .	10 00	
Clarence B. Ashenden, inspector .	10 00	
Wm. C. Brown, inspector . . .	10 00	
Charles W. Fordham, deputy in- specter . . . . .	6 00	
Jacob Pratt, Jr., deputy inspector	6 00	
Carl H. Bunker, deputy inspector	6 00	
Thomas C. Donovan, deputy in- specter . . . . .	5 00	

## WARD 4, PRECINCT 2.

Wm. R. Dimond, warden . . .	10 00	
Allen Jordan, deputy warden . .	3 00	
Wm. S. Ware, deputy warden . .	3 00	
Edward H. Kenney, clerk . . .	10 00	
James A. Early, deputy clerk . .	6 00	
Frederick W. Fuller, inspector .	10 00	
Herbert M. Wiswall, inspector .	10 00	
John Dolan, inspector . . .	10 00	
John J. Kenney, inspector . . .	10 00	
Henry T. Wiswall, deputy in- specter . . . . .	6 00	
Peter C. Baker, deputy inspector	6 00	
Fred C. Lyon, deputy inspector .	6 00	
Owen McCourt, deputy inspector	6 00	

## WARD 5, PRECINCT 1.

Albert J. Grover, warden . . .	10 00	
John W. Howe, deputy warden .	6 00	
Frank W. Barney, clerk . . .	10 00	
Charles B. Bancroft, deputy clerk . . . . .	6 00	

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<i>Amounts carried forward</i>	\$3,718 63	\$3,780 00
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<i>Amounts brought forward</i>	\$3,718 63	\$3,780 00
Otis Pettee, inspector . . .	10 00	
Erastus Gott, inspector . . .	10 00	
Daniel Kelleher, inspector . . .	10 00	
Frank Fanning, inspector . . .	10 00	
Joseph F. Brown, deputy in- specter . . . . .	6 00	
Eben Thompson, deputy inspector	3 00	
Edward M. Billings, deputy in- specter . . . . .	3 00	
James E. Connors, deputy in- specter . . . . .	6 00	
Stephen Keyes, deputy inspector	3 00	
Bartholemew S. Ford, deputy in- specter . . . . .	3 00	

## WARD 5, PRECINCT 2.

Charles H. Burr, warden and inspector . . . . .	10 00	
Joseph R. Smith, warden . . .	5 00	
John Glover, deputy warden . .	3 00	
W. H. Burr, deputy warden and deputy inspector . . . . .	6 00	
Edwin H. Corey, clerk . . . .	10 00	
E. H. Greenwood, deputy clerk .	6 00	
Horace W. Taylor, inspector . .	5 00	
Fred. A. O'Connor, inspector . .	10 00	
George F. Leonard, inspector . .	10 00	
Samuel L. Eaton, inspector . . .	5 00	
Charles P. Clark, inspector . . .	4 00	
Newton Crane, deputy inspector	6 00	
Willard E. Ryder, deputy in- specter . . . . .	3 00	

<i>Amounts carried forward,</i>	\$3,865 63	\$3,780 00
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<i>Amounts brought forward</i>	\$3,865 63	\$3,780 00
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## WARD 6, PRECINCT 1.

Samuel M. Jackson, warden . . . . .	10 00
Asa C. Jewett, deputy warden . . . . .	6 00
Zadoc Long, clerk . . . . .	10 00
George A. Holmes, deputy clerk, . . . . .	6 00
James W. Hill, inspector . . . . .	5 00
D. H. McWain, inspector . . . . .	10 00
Arthur Muldoon, inspector . . . . .	10 00
Howard Carleton, inspector . . . . .	5 00
Frank A. Mason, inspector and deputy inspector . . . . .	6 00
Walter H. Thorpe, deputy in- specter . . . . .	6 00
Walter Thorpe, deputy inspector . . . . .	6 00
Horace G. Rhue, deputy inspector . . . . .	4 00
H. A. Tomlinson, inspector and deputy inspector . . . . .	8 00

## WARD 7, PRECINCT 1.

Amasa W. B. Huff, warden . . . . .	10 00
Frederick G. Kimball, deputy warden . . . . .	2 00
Moses Clark, Jr., clerk . . . . .	10 00
Henry C. Daniels, deputy clerk . . . . .	6 00
Robert B. Edes, inspector . . . . .	10 00
George M. Weed, inspector . . . . .	5 00
George W. Lamson, inspector . . . . .	10 00
Francis A. Barrows, inspector . . . . .	10 00
Joseph W. Howard, inspector and deputy inspector . . . . .	8 00
Martin V. B. Paine, deputy in- specter . . . . .	4 00

<i>Amounts carried forward,</i>	\$4,032 63	\$3,780 00
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<i>Amounts brought forward,</i>	\$4,032 62	\$3,780 00
Robert A. Brackett, deputy in- specter . . . . .	4 00	
M. Lawrence Clark, deputy in- specter . . . . .	3 00	
	<hr/>	
Total, as per item No. 12 of expenses .		4,039 63
		<hr/>
Amount overdrawn, transferred into excess and deficiency account . . . . .		\$259 63

**Fire Department.**

Appropriation . . . . .	\$30,705 00	
Additional appropriation by order of City Council . . . . .	500 00	
	<hr/>	
		\$31,205 00
Henry L. Bixby, Chief of De- partment . . . . .	\$1,700 00	

**STEAMER NO. 1.**

F. E. Judkins, engi- neer . . . . .	\$1,000 00		
John Deary, driver . . . . .	665 30		
F. A. Dexter, driver . . . . .	109 24		
Richard W. Lyons, driver . . . . .	32 13		
F. A. Dexter, driver Hose 1 . . . . .	562 85		
P. C. Carroll, driver Hose 1 . . . . .	87 15		
W. M. Morey, relief driver . . . . .	31 00		
W. M. Morey, relief driver Hose 1 . . . . .	25 20		
	<hr/>		
<i>Amt's carried forward</i>	\$2,512 87	\$1,700 00	\$31,205 00

<i>Am'ts brought forward,</i>	\$2,512 87	\$1,700 00	\$31,205 00
E. W. Lyons, foreman	110 00		
J. F. Horrigan, assist- ant foreman and secretary . . .	105 00		
John Mc Cam mon, hoseman . . .	100 00		
A. R. Carley, hoseman	100 00		
Walter Pingree, hose- man . . . . .	100 00		
B. F. Tripp, hoseman .	100 00		
P. C. Carroll, hoseman	83 33		
William Alfred, hose- man . . . . .	16 67		
I. J. Jefferson, stoker .	70 83		
	<hr/>	3,298 70	

## STEAMER No. 2 AND CHEMICAL A.

R. S. Cummings, en- gineer . . . .	\$1,000 00		
Charles L. Berry, driver	800 00		
W. M. Morey, relief driver . . . .	31 00		
J. H. Sanders, driver Hose 2 . . . .	650 00		
W. M. Morey, relief driver Hose 2 .	48 53		
George H. Haynes, foreman . . . .	110 00		
F. H. Humphrey, as- sistant foreman and secretary .	105 00		
H. W. Nichols, hose- man . . . . .	100 00		

<i>Am'ts carried forward</i>	\$2,844 53	\$4,998 70	\$31,205 00
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<i>Am'ts brought forward,</i>	\$2,844 53	\$4,998 70	\$31,205 00
George Sanders, hose-			
man . . . . .	82 69		
E. P. Kebbe, hoseman	62 50		
C. M. Kebbe, hoseman	58 33		
F. R. Pippin, hoseman	54 15		
J. L. Christie, hoseman	41 67		
Joseph Commons, hose-			
man . . . . .	25 00		
W. M. Morey, hoseman	20 83		
C. H. Morse, hoseman	8 33		
		3,198 03	

## STEAMER No. 3.

A. D. Colby, engineer	\$1,000 00		
P. E. Ellis, driver .	800 00		
W. M. Morey, re'f driver	31 00		
W. H. Ayles, driver			
Hose 3 . . . . .	486 65		
J. F. Higbee, driver			
Hose 3 . . . . .	163 22		
W. M. Morey, relief			
driver Hose 3 . . .	25 20		
A. I. English, foreman	110 00		
S. F. Chadbourne, as-			
sistant foreman			
and secretary . . .	105 00		
C. B. Garey, hoseman	100 00		
D. McDonald, hoseman	100 00		
C. J. Polley, hoseman	100 00		
W. B. Polley, hoseman	100 00		
J. McMahan, hoseman	100 00		
C. E. Thompson, hose-			
man . . . . .	100 00		
		3,321 07	

<i>Amounts carried forward</i>	\$11,517 80	\$31,205 00
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<i>Amounts brought forward</i>	\$11,517 80	\$31,205 00
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HOOK & LADDER No. 1.

J. E. Watson, driver .	\$800 00	
W. M. Morey, relief driver . . .	31 00	
W. S. Higgins, fore- man . . . .	110 00	
F. B. Sisson, assistant foreman and sec- retary . . .	105 00	
J. H. Williams, lad- derman . . .	100 00	
O. Dow, ladderman .	100 00	
T. C. Nickerson, lad- derman . . .	100 00	
U. H. Dyer, ladderman	100 00	
John Beal, ladderman	100 00	
J. B. Watt, ladderman	100 00	
J. F. Horrigan, ladder- man . . . .	100 00	
Charles Coleman, lad- derman . . .	100 00	
M. McLeod, ladderman	100 00	
A. A. Savage, ladder- man . . . .	100 00	
	<hr/>	2,046 00

HOSE No. 4.

T. C. Holmes, driver .	\$602 43
W. M. Morey, driver and relief driver .	72 65
E. C. Waterhouse, foreman . . .	110 00

<i>Am'ts carried forward</i>	\$785 08	\$13,563 80	\$31,205 00
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<i>Am'ts brought forward</i>	\$785 08	\$13,563 80	\$31,205 00
A. J. Wandlass, as- sistant foreman and secretary . . .	105 00		
Daniel Archibald, hoseman . . .	100 00		
Norman P. Snell, hose- man . . .	100 00		
Edward Joyal, hose- man . . .	75 00		
	—————	1,165 08	

## HOSE NO. 5.

John S. Williams, driver . . .	650 00		
W. M. Morey, relief driver . . .	50 40		
J. F. Washburn, fore- man . . .	110 00		
J. U. Kimball, assis- tant foreman and secretary . . .	105 00		
John Frost, hoseman .	100 00		
C. H. Hall, hoseman .	100 00		
J. M. Taylor, hoseman,	72 91		
	—————	1,188 31	

## HOSE NO. 6.

D. J. Cooney, driver .	650 00		
W. M. Morey, relief driver . . .	25 20		
Bernard Early, fore- man . . .	110 00		
	—————	—————	—————
<i>Am'ts carried forward</i>	\$785 20	\$15,917 19	\$31,205 00

<i>Am'ts brought forward,</i>	\$785 20	\$15,917 19	\$31,205 00
Daniel J. Corcoran, assistant foreman and secretary .	105 00		
P. E. O'Neil, hoseman	100 00		
Timothy E. Healy, hoseman . .	100 00		
Andrew B. Hayden, hoseman . .	100 00		
	<hr/>	1,190 20	

## HOSE No. 7.

J. E. Trowbridge, driver . .	\$325 00		
W. S. Cargill, foreman,	110 00		
Harley A. Smith, as- sistant foreman and secretary .	105 00		
J. E. Trowbridge, hoseman . .	100 00		
J. T. Thomason, hose- man . . .	100 00		
G. H. Osborne, hose- man . . .	100 00		
J. L. Randall, hose- man . . .	100 00		
	<hr/>	940 00	
George K. Stacy, relief engineer and driver . .	\$900 00		
George Saunders, re- lief engineer and driver . .	122 50		
	<hr/>	1,022 50	
<i>Amounts carried forward,</i>	\$19,069 89	\$31,205 00	



<i>Amounts brought forward</i>	\$19,069 89	\$31,205 00
Seventeen firemen extra services, July 4th . . . .	51 00	

## REPAIRS, SUPPLIES, AND INCIDENTALS.

James Stanley, one pair horses . . . .	550 00	
J. C. Richardson, exchange of horses . . . .	532 00	
Wm. H. Thompson, horse . . . .	200 00	
Albert Brackett & Son, grain . . . .	674 80	
H. W. Crowell, grain . . . .	518 57	
George E. Johnson, grain . . . .	475 00	
N. W. Tupper, grain . . . .	450 75	
C. F. Eddy, grain . . . .	445 30	
H. W. Crowell, hay . . . .	87 58	
C. F. Eddy & Co., coal . . . .	582 19	
J. W. Mitchell, coal . . . .	329 09	
Cousens Brothers, coal . . . .	54 00	
John Dolan, coal . . . .	31 25	
B. C. Baker, wood . . . .	11 90	
Albert Brackett & Son, wood . . . .	8 25	
Newton & Watertown Gas Light Co., gas . . . .	529 20	
Water Department, use of water . . . .	156 29	
J. C. Farrar, blacksmithing . . . .	166 12	
Murray & Farrell, blacksmithing, . . . .	105 68	
B. F. Barlow, blacksmithing . . . .	96 93	
J. A. Nugent, blacksmithing . . . .	95 09	
Charles A. Cole, blacksmithing . . . .	35 40	
D. J. O'Donnell, blacksmithing . . . .	25 00	
Thomas Belger, blacksmithing . . . .	24 00	
John Pulcifer, blacksmithing . . . .	19 88	
<i>Amounts carried forward</i>	<hr/> \$25,325 16	<hr/> \$31,205 00

<i>Amounts brought forward</i>	\$25,325 16	\$31,205 00
P. A. McVicar, blacksmithing .	6 75	
Stephen F. Cate, use of teams .	103 75	
Central Stables, use of teams .	7 50	
Timothy Stuart & Son, use of horses . . . . .	81 19	
Dennis Lehey, use of horses .	66 50	
Bernard McFaden, use of horses .	36 75	
Thomas F. Mague, use of horses	26 25	
S. L. Pratt, use of horses . . .	26 00	
William Walsh, use of horses .	22 75	
John Joyce, use of horses . . .	21 00	
John Hackett, use of horses . .	16 63	
Wm. H. Thompson, use of horse .	8 95	
Cornelius McBride, use of horse .	7 88	
W. H. Mague, use of horse . . .	3 50	
Madison Bunker, attendance upon sick horses . . . . .	175 00	
Madison Bunker, extra service .	10 00	
H. B. Wells, horse dentistry . .	24 00	
Waltham Steam Laundry, laun- dry work . . . . .	74 40	
Mrs. Margaret Smith, laundry work . . . . .	32 52	
Mrs. Thomas Purcill, laundry work . . . . .	28 81	
Mrs. J. A. Buttrick, laundry work	12 67	
Mrs. Furdon, laundry work . . .	9 90	
The B. F. Goodrich Co., hose . .	827 16	
Abbott Downing Co., new wagon	200 00	
Cornelius Callahan, gong striker	30 00	
Samuel Eastman & Co., nozzles and holders . . . . .	70 00	
<i>Amounts carried forward</i>	\$27,255 02	\$31,205 00

<i>Amount brought forward</i>	\$27,255 02	\$31,205 00
Alden Speare's Sons & Co., oil .	29 62	
A. W. Mitchell Mfg. Co., badges	23 20	
Leander Barber, brooms . . .	16 00	
The Hartford Steam Boiler In- spection and Insurance Co., inspection of boilers . . .	15 00	
Putnam & Co., mattresses . . .	5 50	
Henry L. Bixby, expenses to con- vention . . . . .	57 45	
Henry L. Bixby, sundry cash ex- penses . . . . .	21 26	
Dr. F. E. Porter, medical atten- dance . . . . .	30 00	
Charles H. Jenison, expressage .	15 28	
Eames' Express, expressage .	5 00	
R. S. Bullard, expressage . .	2 50	
The Red Line Transit Co., freight	6 24	
B. & A. R. R. Co., freight . .	2 27	
Charles H. Stacy, telegrams .	1 99	
Alex. Griswold, material and labor . . . . .	55 25	
F. W. Stringe, material and labor	35 75	
Charles E. Berry, material and labor . . . . .	22 00	
Robbins & Healy, material and labor . . . . .	17 62	
Arthur L. Hahn, material and labor . . . . .	12 15	
R. J. Gilfeather, material and labor . . . . .	9 15	
M. C. Higgins, material and labor	7 75	
Peter Gray, material and labor .	7 65	
<i>Amounts carried forward</i>	\$27,653 65	\$31,205 00

<i>Amounts brought forward</i>	\$27,653 65	\$31,205 00
Serannage Brothers & Cook, material and labor . . . . .	7 65	
E. W. Hodgson, material and labor . . . . .	6 40	
Hill & Langtry, material and labor . . . . .	5 75	
Boston Nickel Plating Co., material and labor . . . . .	5 22	
J. U. Kimball, material and labor . . . . .	5 00	
F. H. Harrington, material and labor . . . . .	4 50	
H. H. Hunt, material and labor . . . . .	3 77	
Charles W. Ring, material and labor . . . . .	3 00	
Andrew J. Morse & Son, material and labor . . . . .	3 00	
Adam Beck, material and labor . . . . .	2 39	
J. W. Conroy & Son, material and labor . . . . .	2 30	
M. S. Hodgson, material and labor . . . . .	2 25	
C. F. Hovey & Co., supplies . . . . .	54 55	
F. H. Humphrey, agt., supplies . . . . .	35 39	
Manchester Locomotive Works, supplies . . . . .	34 60	
Page & Coffin, supplies . . . . .	33 50	
Boston Belting Co., supplies . . . . .	25 50	
W. C. Smith, supplies . . . . .	24 00	
Edward E. Rice & Co., supplies . . . . .	22 75	
A. A. Savage, supplies . . . . .	18 47	
Eureka Fire Hose Co., supplies, . . . . .	18 00	
Edwin Rogers & W. E. Deerow, supplies . . . . .	17 50	
<i>Amounts carried forward</i>	\$27,989 14	\$31,205 00

<i>Amounts brought forward</i>	\$27,989 14	\$31,205 00
Charles Shourds, supplies . . .	17 50	
H. W. Bigelow, supplies . . .	15 00	
C. G. Braxmar, supplies . . .	14 50	
Arthur Hudson supplies . . .	14 05	
Isaac H. Snow, supplies . . .	12 75	
J. Hinman, supplies . . .	11 25	
H. E. Woodberry, supplies . . .	9 15	
J. E. Trowbridge, supplies . . .	9 00	
Pettingill-Andrews Co., supplies	8 15	
George H. Ingraham, supplies . .	9 77	
Boston Chemical Co., supplies . .	6 00	
Barber Brothers, supplies . . .	5 93	
H. W. Wellington, supplies . . .	5 78	
Alfred Brush, supplies . . .	5 35	
Charles C. Perkins, supplies . . .	5 00	
Wm. F. Nye, supplies . . .	5 00	
S. O. Thayer & Co., supplies . . .	4 50	
J. L. Hopkinson, supplies . . .	4 25	
Asahel Wheeler, supplies . . .	3 75	
A. J. Fiske & Co., supplies . . .	3 35	
Fire Extinguisher Mfg. Co., sup- plies . . . . .	3 25	
Frank W. Freeman, supplies . . .	3 40	
C. B. Barrett & Co., supplies . . .	3 00	
B. F. Houghton, supplies . . .	2 88	
John J. Noble supplies . . .	2 30	
Fox, McDormand & Co., supplies	2 00	
W. Rand, supplies . . .	1 75	
I. R. Stevens, supplies . . .	1 98	
Sundry small bills . . .	14 01	
<i>Amounts carried forward</i>	\$28,193 74	\$31,205 00

<i>Amounts brought forward</i>	\$28,193 74	\$31,205 00
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## FIRE ALARM TELEGRAPH.

W. B. Randlett, Assistant Chief and fire alarm telegraph operator . . .	\$1,200 00
George G. Perkins, telegraph line man .	800 00
Edwin Rogers & W. E. Decrow, fire alarm boxes, etc. . .	735 39
Edward E. Rice & Co., vitriol . . .	143 69
Washburn & Moen Mfg. Co., wire .	118 12
Pettengill-Andrews Co., wire . . .	35 36
Hall & Washburn, wire	14 00
J. B. Prescott, zincs .	79 70
Newton & Watertown Gas Light Co., gas	86 20
Davis & Farnum Mfg. Co., furnace and kettle . . .	12 00
Alfred Fitzpatrick, lumber . . .	8 14
W. B. Randlett, sundry cash expenses	18 65
George H. Sampson, powder . . .	5 22
J. C. Farrer, blacksmithing . . .	9 45

<i>Am'ts carried forward</i>	\$3,265 92	\$28,193 74	\$31,205 00
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<i>Amt's brought forward</i>	\$3,265 92	\$28,193 74	\$31,205 00
J. Willey Edmands, lineman . . .	30 09		
William Connell, labor	72 00		
George Tourtelot, labor	6 00		
S. L. Pratt, use of horse	20 50		
Timothy Stuart, use of horse . . .	7 87		
Arthur Muldoon, labor men and teams .	3 50		
Eames' Express, ex- pressage . . .	3 20		
V. Haffermehl, materi- al and labor .	41 00		
Wm. Bliss, material and labor . . .	40 00		
P. Y. Hoseason, mate- rial and labor .	21 93		
Eastern Electric Cable Co., supplies .	25 70		
Barber Brothers, sup- plies . . . .	12 90		
A. J. Wilkinson, sup- plies . . . .	10 73		
Gethins Electrical Mfg. Co., supplies	9 15		
Charles A. Cole, sup- plies . . . .	6 75		
N. E. Electric Safety Co., supplies .	6 50		
Walworth Mfg. Co., supplies . . .	5 70		
Charles L. Bly, supplies	5 00		

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<i>Amt's carried forward</i>	\$3,594 44	\$28,193 74	\$31,205 00
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<i>Am'ts carried forward</i>	\$3,594 44	\$28,193 74	\$31,205 00
The Holtzer - Cabot Electric Co., sup- plies . . . .	5 00		
The E. S. Greeley Co., supplies . . . .	4 32		
D. H. McWain, sup- plies . . . .	4 15		
I. R. Stevens, supplies	3 17		
Sundry small bills . . . .	6 68		
	<hr/>	3,617 76	
Total, as per item No. 13 of expenses . . . .			31,811 50
Amount overdrawn, transferred into excess and deficiency account . . . .			<hr/> \$606 50

**Funded Debt.**

Town of Newton notes. Paid to the Commonwealth of Mas- sachusetts, note 6 per cent. due April 20, as per item No. 14 of expenses . . . .	\$20,000 00	
Schoolhouse note (Williams and Eliot). Paid to Winchester Savings Bank, note 4 per cent. due Jan. 25, as per item No. 15 of expenses . . . .	5,150 00	
School note (addition to High School building). Paid to Estate of John Brewster, note 3 1-2 per cent. due Oct. 4, as per item No. 16, of ex- penses . . . .	4,500 00	



Newton Free Library note (en-  
largement of library build-  
ing). Paid to Five Cents  
Savings Bank, Salem, note  
3 1-2 per cent., due Oct. 4,  
as per item No. 17 of ex-  
penses . . . . 4,600 00

**Fire Alarm Striker, Nonantum.**

Special appropriation by order of City Council . . . .	\$675 00
Edwin Rogers and W. E. Decrow, fire alarm striker . . .	\$484 72
Stephen Holmes, material and labor . . . . .	33 27
F. H. Humphrey, agt., material and labor . . . . .	5 68
H. M. Darling & Co., supplies .	2 25
<hr/>	
Total, as per item No. 18 of expenses .	525 92
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Balance unexpended, transferred into excess and deficiency account . . . . .	\$149 08

**Highways — Curbing.**

Appropriation . . . . .	\$4,000 00
Transferred to appropriation for highways — general repairs .	\$300 00
Transferred to appropriation for drains and culverts . . . .	600 00
<hr/>	
	900 00
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<i>Amount carried forward</i>	\$3,100 00

<i>Amount brought forward</i>		\$3,100 00
John A. Kenrick, Treasurer, labor men and teams, Highway Department . . . . .	\$1,214 05	
Noah Prescott, curb stone . . . .	1,394 90	
Boston & Albany R. R. Co., freight . . . . .	276 10	
N. Y. & N. E. R. R. Co., freight	53 50	
John W. Scott, blacksmithing . .	10 13	
Murray & Farrell, blacksmithing	10 70	
Sundry small bills . . . . .	4 66	
<hr/>		
Total, as per item No. 19 of expenses .		2,964 04
<hr/>		
Balance unexpended, transferred into excess and deficiency account . . . . .		\$135 96

**Drains and Culverts.**

Appropriation . . . . .	\$6,000 00	
Transferred from appropriation for curbing, by order of City Council . . . . .	600 00	
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		\$6,600 00
John A. Kenrick, Treasurer, labor men and teams, Highway Department . . . . .	\$2,976 23	
Waldo Brothers, cement . . . .	806 87	
H. W. Clapp & Co., traps and grates . . . . .	546 90	
The Marcellus Day Co., drain pipe . . . . .	445 60	
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<i>Amounts carried forward</i>	\$4,775 60	\$6,600 00

<i>Amounts brought forward</i>	\$4,775 60	\$6,600 00
F. E. Hamblen, drain pipe . . .	216 89	
A. H. Roffe, drain pipe . . .	12 80	
Fiske, Coleman & Co., pipe . . .	22 77	
George A. Walton, pipe . . .	10 00	
Parker, Holmes & Co., rubber boots . . . . .	263 32	
M. W. Sands, brick . . . . .	169 50	
Edson Mfg. Co., hose, etc. . . .	126 50	
Boston & Albany R. R. Co., freight . . . . .	303 67	
George L. Pearson, expressage . .	6 50	
Noah Prescott, stone . . . . .	75 06	
M. Frank Lucas, stakes . . . .	27 30	
Newton Odorless Excavating Co., cleaning out man-holes . . . .	15 00	
Bacon & Co., iron . . . . .	7 50	
C. A. Harrington, lumber . . . .	3 00	
Pettee Machine Works, material and labor . . . . .	180 90	
Peter C. Barker, material and labor . . . . .	63 54	
Edward Hill, et al., use of water .	2 65	
Murray & Farrell, blacksmithing .	5 10	
W. J. Fiske, repairing rubber boots . . . . .	5 60	
Timothy Stuart & Son, use of pump . . . . .	4 50	
Sundry small bills . . . . .	3 98	
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Total, as per item No. 20 of expenses . .		6,301 68
		<hr/>
Balance unexpended, transferred into excess and deficiency account . . . . .		\$298 32

**Special Drains and Culverts.**

Appropriation . . . . .		\$25,000 00
John A. Kenrick, Treasurer,		
amount paid for labor men		
and teams, as per pay rolls .	\$14,740 09	
Fiske, Coleman & Co., drain pipe	2,945 00	
Waldo Brothers, drain pipe, etc.	943 55	
Portland Stone Ware Co., drain		
pipe . . . . .	844 37	
A. H. Roffe, drain pipe . . . .	3 90	
M. W. Sands, brick . . . . .	1,273 23	
Russell Freeman, brick . . . .	5 50	
C. A. Harrington, lumber . . .	314 83	
F. E. Hamblin, cement . . . .	186 81	
H. W. Clapp & Co., grates . . .	227 50	
Pettee Machine Works, man-hole		
covers . . . . .	130 00	
George H. Sampson, powder . . .	42 05	
David Jackson, stone . . . . .	17 50	
Wilson's Express, expressage . .	87 25	
F. H. Hunting, expressage . . .	7 50	
C. H. Jenison, expressage . . .	6 00	
N. Y. & N. E. R. R. Co., freight	55 12	
Boston & Albany R. R. Co.,		
freight . . . . .	14 70	
James F. Lucas, laying brick on		
Waverley avenue and		
Church street drain . . . .	371 87	
Timothy Stuart & Son, use of		
pump, etc. . . . .	19 70	
J. C. Farrar, blacksmithing . .	81 24	
John W. Scott, blacksmithing . .	35 38	
<i>Amounts carried forward,</i>	\$22,557 10	\$25,000 00

<i>Amounts brought forward</i>	\$22,557 10	\$25,000 00
Charles A. Cole, blacksmithing .	22 98	
Andrew Peters, blacksmithing .	17 04	
T. W. Mullen, blacksmithing .	10 75	
Thomas Belger, blacksmithing .	7 50	
P. A. McVicar, blacksmithing .	3 00	
J. Q. Harrington, filing saws .	3 50	
Alfred Fitzpatrick, material and labor . . . . .	23 55	
Stephen Holmes, material and labor . . . . .	17 62	
Garey & English, material and labor . . . . , .	16 31	
C. J. Polley, material and labor .	3 10	
Fred. C. Gifford, supplies . .	30 00	
Ames Plow Co., supplies . .	12 55	
B. F. Houghton, supplies . .	8 28	
Barber Brothers, supplies . .	7 94	
John S. Sumner, supplies . .	3 90	
S. O. Thayer & Co., supplies .	2 82	
O. F. Lucas, supplies . .	2 25	
Sundry small bills . . . .	10 92	
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Total, as per item No. 21 of expenses .	22,557 10	
<hr/>		
Balance unexpended, transferred into excess and deficiency account . . . . .	\$2,442 90	

**Highways — General Repairs.**

Appropriation . . . . .	\$65,000 00
Transferred from City Treasury for sale crushed stone, etc., by order of City Council .	2,261 03
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<i>Amount carried forward</i>	\$67,261 03

<i>Amount brought forward</i>	\$67,261 03	
Transferred from City Treasury for construction of house on Murray Street, by order of City Council . . . . .	1,200 00	
Transferred from appropriation for curbing by order of City Council . . . . .	300 00	
Transferred from appropriation for land damages by order of City Council . . . . .	200 00	
	<hr/>	\$68,961 03
William E. Fuller, Superintendent of Streets . . . . .	\$993 66	
Estate of William E. Fuller . . . . .	141 66	
Mrs. Lucy J. Fuller, services rendered by William E. Fuller, . . . . .	566 65	
Charles W. Ross, Superintendent of Streets . . . . .	114 91	
John J. Ware, Assistant Superintendent of Streets . . . . .	690 50	
George E. Stuart, Assistant Superintendent of Streets . . . . .	1,080 23	
Charles A. Peck, Assistant Superintendent of Streets . . . . .	949 50	
Thomas Stuart, Assistant Superintendent of Streets . . . . .	246 00	
Samuel M. Jackson, Assistant Superintendent of Streets . . . . .	61 50	
John A. Kenrick, Treas., amount paid laborers on discharge tickets . . . . .	459 39	
John A. Kenrick, Treas., amount paid laborers as per pay-rolls	42,037 75	
<i>Amounts carried forward</i>	<hr/> \$47,341 75	<hr/> \$68,961 03

<i>Amounts brought forward,</i>	\$47,341 75	\$68,961 03
William Kent, sundry cash pay- ments . . . . .	5 72	
George E. Stuart, sundry cash payments . . . . .	2 59	
Charles A. Peck, use of horse and carriage . . . . .	200 00	
John J. Ware, use of horse and carriage . . . . .	100 00	
W. H. Thompson, horses . . .	1,200 00	
David Jackson, one horse . . .	175 00	
J. R. McLaughlin, care of sick horses . . . . .	349 00	
Madison Bunker, care of sick horses . . . . .	2 00	
Stephen F. Cate, use of teams .	72 00	
Timothy Stuart & Son, use of teams . . . . .	65 50	
H. C. Daniels, use of teams .	26 00	
Thomas R. Frost, use of teams .	10 93	
S. L. Pratt, use of teams . . .	6 00	
A. F. Harrington, use of teams .	5 00	
John Joyce, use of teams . . .	4 25	
Central Stables, use of teams .	3 00	
C. Parker, board of horse . . .	12 50	
Newton Cemetery, board of horse	8 00	
Garry & English, erection of building at Murray Street ledge, as per contract . . .	1,200 00	
George H. Sampson, powder, etc.	962 54	
The Farrell Foundry and Mch. Co., steel plates, etc. . . . .	960 96	
Ames Plow Co., tools . . . . .	910 70	
<i>Amounts carried forward</i>	\$53,623 44	\$68,961 03

<i>Amounts brought forward</i>	\$53,623 44	\$68,961 03
Wm. Jessop & Son, steel . . .	53 63	
Jarvis Engineering Co., grate, etc.	46 62	
Ambrose Belting Co., belting . .	40 88	
John Pulcifer, new cart . . .	126 50	
G. K. & J. Ward, chestnut posts	93 67	
M. Frank Lucas, stakes . . .	45 00	
C. A. Harrington, lumber . . .	6 44	
Cobb, Bates & Yerxa, oatmeal . .	50 75	
Fred. C. Gifford, picks . . .	45 00	
George Bowen, books . . .	11 00	
Water Department, use of water	302 45	
N. & W. Gas Light Co., gas . . .	53 80	
Charles R. Noyes, rent of land . .	36 00	
Jenkins Brothers, cotton waste . .	10 40	
Gould Packing Co., packing . . .	7 21	
Leander Barber, brooms . . .	10 00	
Waldo Brothers, cement . . .	3 50	
Noah Prescott, stone . . .	16 00	
J. Q. Harrington, filing saws . . .	4 25	
G. K. & J. Ward, rent of ledge . .	100 00	
M. G. Crane, gravel . . .	64 10	
Joseph E. Fisk, gravel . . .	42 80	
C. S. Pulsifer, gravel . . .	8 50	
Allen Jordan, stone . . .	4 75	
H. W. Crowell, grain . . .	616 96	
B. Billings, grain . . .	483 19	
Albert Brackett & Son, grain . . .	420 36	
C. F. Eddy & Co., grain . . .	284 85	
N. W. Tupper, grain, . . .	279 02	
George E. Johnson, grain . . .	210 52	
H. W. Crowell, hay . . .	634 09	
George E. Johnson, hay . . .	305 84	
<i>Amounts carried forward</i>	\$58,041 52	\$68,961 03



<i>Amounts brought forward,</i>	\$58,041 52	\$68,961 03
A. H. Hunkins, hay . . . .	268 37	
James S. Carey, hay . . . .	265 88	
N. W. Tupper, hay . . . .	199 50	
C. F. Eddy & Co., hay . . . .	150 11	
Samuel M. Jackson, hay . . . .	124 39	
Albert Brackett & Son, hay . . . .	88 21	
A. B. Potter, hay . . . .	87 05	
M. V. Buitla, hay . . . .	55 89	
Jeffrey Connell, hay . . . .	53 26	
Stanley Seaverns, hay . . . .	32 70	
George Mills, hay . . . .	24 29	
Asahel Wheeler, hay . . . .	22 20	
George H. Ellis, hay . . . .	20 00	
Andrew Kaupt, hay . . . .	16 21	
C. F. Eddy & Co., straw . . . .	153 38	
H. W. Crowell, straw . . . .	152 39	
George E. Johnson, straw . . . .	101 72	
N. W. Tupper, straw . . . .	78 95	
Albert Brackett & Son . . . .	69 35	
W. L. Stearns, straw . . . .	64 02	
S. M. Jackson, straw . . . .	27 93	
C. F. Eddy & Co., coal . . . .	1,082 14	
Cousens Brothers, coal . . . .	239 97	
Albert Brackett & Son, coal . . . .	230 94	
J. W. Mitchell, coal . . . .	73 12	
Newton Coal Co., coal . . . .	41 81	
J. W. Hill, coal . . . .	19 75	
B. C. Barker, coal . . . .	3 02	
George H. Hammill, wood . . . .	16 25	
J. W. Hill, wood . . . .	8 50	
J. C. Farrar, blacksmithing . . . .	650 85	
Murray & Farrell, blacksmithing . . . .	393 20	
<i>Amounts carried forward,</i>	\$62,856 87	\$68,961 03

<i>Amounts brought forward</i>	\$62,856 87	\$68,961 03
A. Danforth, agt., blacksmithing	182 03	
Charles A. Cole, blacksmithing .	177 80	
J. A. Nugent, blacksmithing .	151 25	
D. J. O'Donnell, blacksmithing .	140 75	
P. A. McVicar, blacksmithing .	130 95	
Andrew Peters, blacksmithing .	111 82	
Thomas Belger, blacksmithing .	97 48	
B. F. Barlow, blacksmithing .	74 65	
T. W. Mullen, blacksmithing .	69 60	
John W. Scott, blacksmithing .	67 50	
J. Pulcifer, blacksmithing .	61 65	
S. D. Keegan, blacksmithing .	14 00	
Richard Stanley, horse liniment .	3 00	
J. N. Danforth, horse salve .	3 00	
Elias Lathrop, hoof ointment .	2 00	
Alex. Griswold, material and labor	399 26	
F. W. Stringe, material and labor	240 06	
Wm. Pettigrew, material and labor . . . . .	218 48	
T. F. Glennan, material and labor	203 65	
Garey & English, material and labor . . . . .	182 49	
E. W. Hodgson, material and labor . . . . .	187 55	
Higgins & Nickerson, material and labor . . . . .	163 82	
Charles J. Polley, material and labor . . . . .	109 00	
C. H. & A. F. Ireland, material and labor . . . . .	90 80	
Bemis & Jewett, material and labor . . . . .	80 04	
<i>Amounts carried forward</i>	<hr/> \$66,019 50	<hr/> \$68,961 03

<i>Amounts brought forward</i>	\$66,019 50	\$68,961 03
Isaac Smith, material and labor .	60 80	
Roberts' Iron Works Co., material and labor . . . .	46 15	
J. O. Evans' Son, material and labor . . . . .	44 05	
A. W. Snow, material and labor .	36 22	
Stephen Holmes, material and labor . . . . .	35 27	
M. S. Hodgson, material and labor . . . . .	31 30	
Water Department, material and labor . . . . .	30 79	
W. L. Smith, material and labor .	24 75	
George B. Randall, material and labor . . . . .	24 67	
H. H. Hunt, material and labor .	24 53	
Walworth Mfg. Co., material and labor . . . . .	24 25	
Lidgerwood Mfg. Co., material and labor . . . . .	22 80	
James S. Newell & Co., material and labor . . . . .	22 31	
Pettie Mch. Works, material and labor . . . . .	21 75	
F. Ivers & Son, material and labor . . . . .	21 50	
S. D. Garey, material and labor .	20 19	
P. Y. Hoseason, material and labor . . . . .	15 25	
W. Rand, material and labor .	14 25	
L. H. Cranitch, material and labor . . . . .	13 50	
<i>Amounts carried forward</i>	\$66,553 83	\$68,961 03

<i>Amounts brought forward</i>	\$66,553 83	\$68,961 03
L. A. Gammons, material and labor . . . . .	12 08	
J. E. Trowbridge, material and labor . . . . .	11 47	
Wm. Johnson, material and labor	10 07	
R. J. Gilfeather, material and labor . . . . .	8 85	
F. H. Humphrey, agt., material and labor . . . . .	8 10	
Ward & Co., material and labor .	5 85	
C. E. Lougee, material and labor	5 00	
J. Connell, material and labor .	3 50	
James Ford, material and labor .	3 35	
H. W. Pierce, material and labor	2 75	
Peter C. Baker, material and labor . . . . .	2 67	
J. F. Horrigan, material and labor . . . . .	2 50	
Samuel M. Jackson, labor, clearing snow from sidewalks . . .	26 00	
Michael Moylan, labor . . . .	7 00	
Vacuum Oil Co., oil . . . . .	268 78	
Maverick Oil Co., oil . . . . .	113 62	
Alden Speare's Sons & Co., oil .	45 85	
Butchers' Slaughtering and Melting Association, oil . . . .	14 95	
The Atlas Chemical Co., axle grease . . . . .	8 45	
Boston & Albany R. R. Co., freight . . . . .	114 70	
F. H. Hunting, expressage . . .	32 00	
C. H. Jenison, expressage . . .	17 35	
<i>Amounts carried forward,</i>	\$67,278 72	\$68,961 03

<i>Amounts brought forward</i>	\$67,278 72	\$68,961 03
Wilson's Express, expressage . . . . .	16 30	
Newcomb & Snider Express, ex- pressage . . . . .	4 60	
Newton Machine Co., supplies . . . . .	229 51	
Dodge, Haley & Co., supplies . . . . .	133 15	
Barber Brothers, supplies . . . . .	71 46	
Bradlee, Hastings & Co., supplies . . . . .	41 28	
Woodburn Sarven Wheel Co., supplies . . . . .	27 50	
George H. Ingraham, supplies . . . . .	25 45	
Wm. C. Oastler, supplies . . . . .	34 25	
Wm. B. Collagan, supplies . . . . .	25 00	
The B. F. Goodrich Co., supplies . . . . .	21 25	
Hubbard & Procter, supplies . . . . .	20 15	
W. O. Knapp & Co., supplies . . . . .	18 58	
G. P. Atkins, supplies . . . . .	16 65	
S. O. Thayer & Co., supplies . . . . .	13 89	
J. H. Houghton, supplies . . . . .	11 00	
B. F. Houghton, supplies . . . . .	10 73	
A. A. Savage, supplies . . . . .	10 26	
James Sullivan & Co., supplies . . . . .	10 00	
Sewall & Day Cordage Co., sup- plies . . . . .	9 16	
Isaac H. Snow, supplies . . . . .	9 05	
L. Nickerson, supplies . . . . .	8 00	
Butts & Ordway, supplies . . . . .	7 07	
O. B. Leavitt, supplies . . . . .	6 45	
Thomas B. Adams & Co., sup- plies . . . . .	5 30	
Thomas Hollis, supplies . . . . .	5 20	
Wm. Henry Brackett, supplies . . . . .	4 20	
D. H. Fitch, supplies . . . . .	3 66	
G. Wilkins Shaw, supplies . . . . .	3 40	
<i>Amounts carried forward</i>	\$68,081 22	\$68,961 03

<i>Amounts brought forward</i>	\$68,081 22	\$68,961 03
Alfred Fitzpatrick, supplies .	4 00	
Warren Soap Mfg. Co., supplies .	3 10	
Howard B. Coffin, supplies .	2 61	
S. M. Spencer, supplies . . .	2 21	
A. J. Fiske & Co., supplies .	2 10	
Ingersoll Sergeant Rock Drill Co., supplies . . . . .	2 00	
Sundry small bills . . . . .	38 16	
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Total, as per item No. 22 of expenses .		68,135 40
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Balance unexpended, transferred into excess and deficiency account . . . . .		\$825 63

**Gravel Land.**

Appropriation . . . . .	\$2,000 00	
Transferred to the appropria- tion for sidewalks and street crossings, by order of City Council . . . . .	1,400 00	
<hr/>		
		\$600 00
Messrs. Charles J. Page, and Fred. Henshaw, gravel .	300 60	
C. S. Pulsifer, gravel . . .	102 45	
Heirs of Dennis O'Donnell, gravel	100 00	
E. C. Nichols, gravel . . .	47 75	
Caleb Craft's heirs, gravel .	24 55	
Elizabeth A. Pierce, gravel .	11 00	
Charles B. Bourne, gravel . .	3 00	
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Total, as per item No. 23 of expenses .		589 35
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Balance unexpended, transferred into excess and deficiency account . . . . .		\$10 65

**Land Damages.**

Appropriation . . . . .	\$500 00	
Additional received from Boston & Albany R. R. Co., on account of Union street, Newton Centre . . . . .	4,518 50	
	<hr/>	\$5,018 50
Transferred to appropriation for highways — general repairs, by order City Council . . . . .	\$200 00	
	<hr/>	200 00
		<hr/>
		\$4,818 50
Mellen Bray, on account of land taken for Union street, Newton Centre . . . . .	\$1,281 00	
Horace Cousens on account of land taken for Union street, Newton Centre . . . . .	3,237 50	
Joseph G. Lyford, for construction and maintenance of drain through his estate . . . . .	100 00	
	<hr/>	
Total, as per item No. 24 of expenses . . . . .		4,618 50
		<hr/>
Balance unexpended, transferred into excess and deficiency account . . . . .		\$200 00

**Sidewalk and Street Crossings.**

Appropriation . . . . .	\$15,000 00	
Transferred from appropriation for gravel lands, by order of City Council . . . . .	1,400 00	
<i>Amount carried forward</i> . . . . .	<hr/>	\$16,400 00

<i>Amount brought forward</i>	\$16,400 00
John A. Kenrick, Treasurer, labor men and teams, Highway Department . . . . .	\$6,898 89
Simpson Brothers, concreting . . . . .	8,094 83
Timothy Stuart & Son, sod and loam . . . . .	260 55
Catherine Pendergast, sod . . . . .	13 70
Mary Ford, sod . . . . .	10 97
Thomas Troy, sod . . . . .	9 49
A. McFaden, material and labor on sidewalk around Linwood Park . . . . .	135 00
George F. Works, lumber . . . . .	33 00
H. H. Hunt, material and labor . . . . .	170 80
C. H. & A. F. Ireland, material and labor . . . . .	143 06
Samuel D. Garey, material and labor, . . . . .	50 32
Wm. F. Johnson, material and labor . . . . .	15 05
Charles A. Cole, blacksmithing . . . . .	3 10
W. O. Knapp & Co., supplies . . . . .	2 63
Barber Bros., supplies . . . . .	2 00
Sundry small bills . . . . .	3 60
Total, as per item No. 25 of expenses . . . . .	15,846 99
Balance unexpended, transferred into excess and deficiency account . . . . .	\$553 01

#### **Widening, Reconstruction and Improvements.**

Appropriation . . . . .	\$22,000 00
Additional appropriation by or	
<i>Amount carried forward</i>	\$22,000 00



<i>Amount brought forward</i>	\$22,000 00	
der of City Council . . .	3,500 00	
Transferred from the city treasury, by order of City Council	200 00	
	<hr/>	\$25,700 00
John A. Kenrick, Treasurer, amount paid for labor, men and teams, as per pay rolls .	\$21,614 89	
Jerry Cotter, labor, men and teams . . . . .	1,174 49	
David Jackson, building wall .	1,350 00	
F. E. Hamblin, drain pipe . .	484 94	
M. W. Sands, brick . . . .	47 00	
Geo. H. Sampson, powder . .	46 88	
Newton Coal Co., coal . . .	19 70	
Albert Brackett & Son, coal .	7 23	
C. F. Eddy & Co., grain . . .	3 50	
Mrs. J. B. Oldreive, stone . .	5 00	
J. W. Hill, wood . . . . .	6 00	
Cobb, Bates & Yerxa, oatmeal .	5 00	
Stephen F. Cate, use of team .	3 00	
Thomas Belger, blacksmithing .	97 49	
J. C. Farrar, blacksmithing .	69 74	
Murray & Farrell, blacksmithing	22 12	
B. F. Barlow, blacksmithing .	21 35	
A. Danforth, agt., blacksmithing	20 10	
Charles A. Cole, blacksmithing .	13 45	
J. Pulsifer, blacksmithing . .	13 14	
P. A. McVicar, blacksmithing .	7 05	
John W. Scott, blacksmithing .	5 69	
Andrew Peters, blacksmithing .	4 03	
George N. Smith, material and labor . . . . .	287 00	
	<hr/>	
<i>Amounts carried forward</i>	\$25,328 79	\$25,700 00

<i>Amounts brought forward</i>	\$25,328 79	\$25,700 00
Samuel D. Garey, material and labor . . . . .	129 58	
Bemis & Jewett, material and labor . . . . .	34 00	
Wm. F. Johnson, material and labor . . . . .	21 40	
Isaac Smith, material and labor . . . . .	16 06	
W Rand, material and labor . . . . .	3 55	
Pettee Machine Works, supplies, . . . . .	10 00	
Barber Brothers, supplies . . . . .	8 67	
Ames Plow Co., supplies . . . . .	7 00	
Sundry small bills . . . . .	7 16	
	<hr/>	
Total, as per item No. 26 of expenses . . . . .		25,566 21
		<hr/>
Balance unexpended, transferred into excess and deficiency account . . . . .		\$133 79

#### Interest on City Loans—Permanent.

Appropriation . . . . .	\$13,101 50
Commonwealth of Massachusetts	\$5,230 00
National Revere Bank . . . . .	4,460 00
Estate of John Brewster . . . . .	1,102 50
Cape Ann Savings Bank . . . . .	412 00
Salem Five Cent Savings Bank . . . . .	322 00
Winchester Savings Bank . . . . .	309 00
Sinking fund commissioners, City of Newton . . . . .	249 87
	<hr/>
Total, as per item No. 27 of expenses . . . . .	12,085 37
	<hr/>
Balance unexpended, transferred into excess and deficiency account . . . . .	\$1,016 13

**Interest on City Loans—Temporary.**

Appropriation . . . . .	\$9,000 00	
Transferred to appropriation for interest on water bonds, by order of City Council . . .	1,173 99	\$7,826 01
Potter Lovell Co. . . . .	\$4,654 90	
Trustees of the Read Fund . .	1,600 00	
New England Mutual Life In- surance Co. . . . .	626 46	
Josiah B. Newell, guardian . .	20 62	
Edith C. Newell . . . . .	20 62	
Elizabeth A. Newell . . . . .	17 87	
Brewster, Cobb & Estabrook . .	568 75	
Total, as per item No. 28 of expenses .		7,509 22
Balance unexpended, transferred into excess and deficiency account . . . . .		\$316 79

**Interest on Water Bonds.**

Appropriation . . . . .	\$63,680 00	
Transferred from city treasury ac- crued interest on water bonds sold, by order of City Council . .	1,986 01	
Transferred from appropriation for interest on city loans, temporary, by order of City Council . . . . .	1,173 99	\$66,840 00
January 1, 1890, National Revere Bank . . . . .	\$24,250 00	
March 17, National Revere Bank .	7,340 00	
July 1, National Revere Bank . .	24,250 00	
October 1, National Revere Bank .	11,000 00	
Total, as per item No. 29 of expenses .		66,840 00

**Indigent Soldiers and Sailors.**

Appropriation . . . . .	\$1,500 00	
Transferred to appropriation for soldiers' relief, by order of City Council . . . . .	200 00	
		<hr/>
		\$1,300 00
John Sexton . . . . .	\$120 00	
Samuel G. Toothachre . . . . .	120 00	
Jefferson Thomas . . . . .	120 00	
Matthew Duncan . . . . .	96 00	
Samuel Franklin . . . . .	96 00	
James H. Lockley . . . . .	96 00	
Albert P. Bugbee . . . . .	72 00	
John F. Franklin . . . . .	48 00	
John Taffe . . . . .	24 00	
Patrick Carrigan . . . . .	10 00	
Mrs. Almira D. Hall . . . . .	24 00	
A. J. Fiske, rent of house to John Taffe family . . . . .	49 00	
S. L. Pratt, burial of soldier . . . . .	35 00	
George W. Bush, burial of soldier . . . . .	35 00	
John Flood, burial of soldier . . . . .	35 00	
		<hr/>
Total, as per item No. 30 of expenses . . . . .		980 00
		<hr/>
Balance unexpended, transferred into excess and deficiency account . . . . .		\$320 00

**Memorial Day.**

Appropriation . . . . .	\$500 00
Charles Ward Post, No. 62, G. A. R., as per item No. 32 of expenses . . . . .	500 00

**Miscellaneous Expenses.**

Appropriation . . . . .		\$6,000 00
Martin C. Laffie, serving war- rants, etc. . . . .	\$1,079 99	
Rodney M. Lucas, serving war- rants . . . . .	125 75	
Heman M. Burr, Mayor, and Winfield S. Slocum, settle- ment of claim . . . . .	200 00	
Mary J. Bennett, settlement of claim . . . . .	75 00	
John M. Norton, settlement of claim . . . . .	50 00	
Mrs. Elizabeth M. Bunker, settle- ment of claim . . . . .	50 00	
Thomas Cox, settlement of claim	30 00	
New England Telegraph and Telephone Co., rental of in- struments . . . . .	594 40	
John A. Kenrick, Treasurer, amount paid for trimming trees, as per pay rolls . . . .	542 56	
Newton Athenæum, aid for read- ing room . . . . .	500 00	
Newton Centre Associates, aid for reading room . . . . .	250 00	
Winfield S. Slocum, city solicitor, for legal expenses . . . . .	400 00	
W. F. & W. S. Slocum, legal ser- vices on account of O'Leary case . . . . .	65 32	
American Bank Note Co., alter- ing plates for water bonds . .	300 00	
<i>Amounts carried forward</i>	<hr/> \$4,263 02	<hr/> \$6,000 00

<i>Amounts brought forward</i>	\$4,263 02	\$6,000 00
George E. Bridges, collecting facts of births . . . .	268 00	
Dr. Francis M. O'Donnell, et al., reporting facts of births . .	98 75	
Edwin Rogers and W. E. Decrow, fire alarm signal box at Cottage Hospital . . . .	125 00	
Boston Safe Deposit and Trust Co., rent of box . . . .	78 33	
Newton Post Office, rent of box .	1 50	
Treasurer of Newton Centre Improvement Association, refund of taxes . . . .	127 06	
Citizens of Newton Lower Falls, allowance on account of bridge . . . .	75 00	
Wiley S. Edmands, insurance premium on Newton Free Library building and contents . . . .	82 00	
E. W. Cobb, agt., insurance premium on Newton Free Library building and contents	41 00	
E. Holman, insurance premium on Newton Free Library building and contents . .	40 00	
Caroline M. Jordan, clerical services in City Treasurer's Department . . . .	143 10	
John C. Brimblecom, clerical services in City Treasurer's Department . . . .	25 00	
<i>Amounts carried forward</i>	<hr/> \$5,367 76	<hr/> \$6,000 00

<i>Amounts brought forward</i>	\$5,367 76	\$6,000 00
Mable F. Kenrick, clerical services in City Treasurer's Department . . . . .	22 00	
Nellie M. Heywood, clerical services in City Treasurer's Department . . . . .	20 00	
Lilla A. Richardson, clerical services in City Treasurer's Department . . . . .	20 00	
R. G. Leavitt, clerical services in City Treasurers Department	17 00	
John C. Brimblecom, making collector's list . . . . .	50 00	
Theo. A. Fleu, inspecting coal .	50 00	
Newton Journal, advertising, etc.	77 90	
The Newton Graphic, printing, etc. . . . .	30 25	
Fanning Printing Co., printing .	3 75	
Benjamin F. Otis, sundry incidental expenses in Auditor's Department . . . . .	35 60	
John A. Kenrick, sundry incidental expenses in Treasurer's Department . . .	32 89	
Isaac F. Kingsbury, sundry incidental expenses in City Clerk's Department . . .	32 55	
W. S. French, sundry incidental expenses on account milk inspection . . . . .	25 00	
J. D. Wellington, sundry incidental expenses in messenger's department . . . . .	23 10	
<i>Amounts brought forward</i>	\$5,807 80	\$6,000 00

<i>Amounts brought forward,</i>	\$5,807 80	\$6,000 00
E. E. Stiles, Q. M., funeral expenses of Armory Hall soldier . . . . .	35 00	
Stephen F. Cate, use of teams . . . . .	466 50	
H. C. Daniels, use of teams. . . . .	116 00	
E. S. Hamblin, use of team by committee . . . . .	4 50	
Central stables, use of team . . . . .	3 00	
Geo. W. Bush, use of team . . . . .	2 00	
A. A. Sherman, use of team . . . . .	2 00	
Newton Machine Co., sounding school signal . . . . .	25 00	
H. Rollinson, services American Watch Factory Band. at Flag Presentation . . . . .	40 20	
Higgins & Nickerson, material and labor . . . . .	78 85	
H. H. Hunt, material and labor . . . . .	34 80	
Miner Robinson, electric service . . . . .	6 60	
Timothy Stuart & Son, labor on Signal Station at Cottage Hospital . . . . .	6 13	
Commonwealth of Massachusetts, one quarter fees of druggists licenses . . . . .	5 25	
Water Department, use of water . . . . .	5 00	
Joseph Lee, supplies . . . . .	140 45	
James Paxton, supplies . . . . .	75 00	
John Irving, supplies . . . . .	29 25	
J. J. Johnson, supplies . . . . .	25 00	
Mrs. A. D. Wood, supplies . . . . .	7 00	
H. M. Darling & Co., supplies . . . . .	6 00	
<i>Amounts carried forward</i>	\$6,921 33	\$6,000 00



<i>Amounts brought forward</i>	\$6,921 33	\$6,000 00
The Educational Supply Co., supplies . . . . .	5 41	
Arthur Hudson, supplies . . . . .	1 35	
Charles H. Stacy, telegrams . . . . .	2 71	
Charles Florence, ringing bell . . . . .	6 00	
J. C. Newcomb, ringing bell . . . . .	6 00	
James Moore, ringing bell . . . . .	6 00	
J. T. Thomason, ringing bell . . . . .	6 00	
F. B. Sisson, ringing bell . . . . .	6 00	
A. S. Connolly, ringing bell . . . . .	6 00	
A. C. Marston, ringing bell . . . . .	6 00	
J. B. McClellan, ringing bell . . . . .	4 00	
George E. Newton, ringing bell . . . . .	3 00	
A. W. Little, ringing bell . . . . .	3 00	
C. B. Peck, ringing bell . . . . .	3 00	
Sundry small bills . . . . .	6 50	
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Total, as per item No. 33 of expenses . . . . .		6,992 30
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Amount overdrawn, transferred into excess and deficiency account . . . . .		\$992 30

**Newton Free Library.**

Appropriation . . . . .	\$10,495 00	
Elizabeth P. Thurston, librarian . . . . .	\$1,000 00	
H. W. Harlowe, assistant librarian . . . . .	333 34	
M. E. Chase, assistant librarian . . . . .	166 67	
Louise J. Smallwood, assistant li- brarian . . . . .	450 00	
Etta P. Cleaveland, assistant li- brarian . . . . .	450 00	
C. A. Flanders, assistant librarian . . . . .	450 00	
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<i>Amounts carried forward</i>	\$2,850 01	\$10,495 00



<i>Amounts brought forward</i>	\$2,850 01	\$10,495 00
K. K. Wood, assistant librarian .	450 00	
Henry J. Marshman, janitor .	800 00	
C. R. Young, substitute janitor .	20 00	
Little, Brown & Co., books .	1,223 76	
Wm. B. Clarke & Co., books .	922 23	
The Boston Book Co., books .	263 25	
Estes & Lauriat, books . .	81 65	
N. J. Bartlett & Co., books .	77 68	
Baleh Brothers, books . .	28 50	
Gustav E. Stechert, books . .	20 90	
The Prince Society, books . .	11 00	
D. Appleton & Co., books . .	6 00	
Henry C. Nash, books . .	6 00	
Wm. Cushing, books . . .	5 00	
John Cutler, subscriptions . .	144 70	
Henry D. Noyes, subscriptions .	139 75	
Tichnor & Co., subscription .	25 00	
Journal Newspaper Co., subscrip- tion . . . . .	12 00	
The Globe Newspaper Co., sub- scription . . . . .	12 00	
Globe Printing Co., subscription	12 00	
The Boston Herald Co., subscrip- tion . . . . .	12 00	
The Boston Post, subscription .	9 00	
The Boston Daily Advertiser, subscription . . . . .	9 00	
George W. Armstrong, subscrip- tion . . . . .	8 25	
The News & Courier, subscription	8 00	
The Tribune Association, sub- scription . . . . .	8 00	
<i>Amounts carried forward</i>	\$7,165 68	\$10,495 00

<i>Amounts brought forward,</i>	\$7,165 68	\$10,495 00
The Republican Co., subscription	7 00	
Constitution Publishing Co., subscription . . . . .	6 00	
Gazette Printing Co., subscription . . . . .	6 00	
The Sun (New York), subscription . . . . .	6 00	
The World (New York), subscription . . . . .	6 00	
Charles C. Fulton & Co., subscription . . . . .	6 00	
Post Publishing Co., subscription	6 00	
Garden & Forrest Publishing Co., subscription . . . . .	4 00	
L. R. Hamersly & Co., subscription . . . . .	4 00	
H. G. Parker, subscription . . . . .	3 20	
Bibliotheca Sacra, subscription . . . . .	3 00	
George H. Pratt, subscription . . . . .	2 50	
The Newton Graphic, subscription . . . . .	2 00	
Henry C. Daniels, expressage of books . . . . .	1,080 00	
L. N. Burbank, expressage of books . . . . .	42 00	
J. H. H. McNamee, binding books	434 33	
Newton Journal, printing slips . . . . .	30 00	
Newton & Watertown Gas Light Co., gas . . . . .	653 60	
Water Department, use of water	11 26	
C. F. Eddy & Co., coal . . . . .	201 25	
Albert Brackett & Son, coal . . . . .	100 14	
<i>Amounts carried forward,</i>	\$9,779 96	\$10,495 00

<i>Amounts brought forward</i>	\$9,779 96	\$10,495 00
Newton Centre Associates, services agency . . . .	75 00	
W. C. Gaudelet, services agency	50 00	
Everett E. Moody, services agency	49 50	
Bernard Billings, services agency	40 00	
A. E. Brickett, services agency .	40 00	
Alfred Brush, services agency .	40 00	
C. W. Kinder, services agency .	20 00	
Hallett Brothers, paper . . .	25 00	
Elizabeth P. Thurston, conference expenses . . . .	22 00	
S. B. Maxwell, labor cleaning building . . . . .	44 80	
H. H. Hunt, material and labor on elevator as per contract .	100 00	
George S. Noden, material and labor . . . . .	39 50	
Russell Freeman, material and labor . . . . .	16 50	
Charles A. Hill, material and labor . . . . .	11 02	
Library Bureau, supplies . .	69 85	
Walworth Mfg. Co., supplies .	27 97	
H. M. Darling & Co., supplies .	12 00	
Nicholson & Co., supplies . .	12 00	
The Waterman Kitchen Furnishing Store, supplies . . .	11 00	
A. W. Worthley, supplies . .	5 90	
Peabody & Whitney, supplies .	3 00	

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Total, as per item No. 34 of expenses . . \$10,495 00

**Newton Cottage Hospital.**

Appropriation . . . . .	\$1,500 00
Paid George S. Bullens, treasurer, as per item No. 35 of expenses . . . . .	1,500 00

**Newton Cottage Hospital—(Special).**

Appropriation by order of City Council for the construction of buildings for treat- ment of contagious diseases, as per item No. 36 of expenses . . . . .	\$10,000 00
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**Newton Highlands Engine House—(Special).**

Appropriation, by order of City Council . . . . .	\$16,500 00
H. H. Hunt, contract on building \$10,000 00	
H. H. Kendall, on account ser- vices and plans . . . . .	450 00
Total, as per item No. 37 of expenses . . . . .	10,450 00
Balance carried forward . . . . .	\$6,050 00

**Parks and Squares.**

Appropriation . . . . .	\$2,000 00
Arthur Muldoon, care Newton Centre Parks . . . . .	\$594 50
Myles J. Joyce, care Farlow Park . . . . .	549 25
John Farrell, care Newtonville Parks . . . . .	78 00
Daniel Daily, care Lincoln Park . . . . .	68 05
George M. Fiske, expended for care of Walcott Park . . . . .	40 00
<i>Amounts carried forward</i> . . . . .	\$1,329 80
	\$2,000 00

<i>Amounts brought forward</i>	\$1,329 80	\$2,000 00
John Stearns, care Parks Clark and Centre St. . . . .	10 00	
Louis P. Rider, care Linwood Park . . . . .	8 00	
A. McFaden, grading Linwood Park . . . . .	150 00	
John A. Kenrick, Treasurer, labor men and teams . . . . .	20 88	
Newton Highlands Improvement Association, trees . . . . .	72 00	
W. C. Strong, trees . . . . .	30 00	
Newton Cemetery, trees . . . . .	25 50	
J. J. Johnson, plants for Farlow Park . . . . .	25 00	
A. D. Lougee, dressing for Lin- wood Park . . . . .	26 00	
R. & J. Farquhar, fertilizer for Farlow Park . . . . .	34 00	
Ham & Carter, basin grates for Farlow Park . . . . .	6 00	
Whitman & Barnes, lawn mower	17 20	
Timothy Stuart & Son, gravel .	8 75	
Simpson Brothers, concreting .	6 40	
Morss & Whyte, strainer . .	5 00	
Eames Express, expressage .	2 50	
Sundry small bills . . . . .	3 45	

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Total, as per item No. 38 of expenses .	1,780 48
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Balance unexpended, transferred into excess and deficiency account . . . . .	\$219 52
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**Police Department.**

Appropriation . . . . .	\$31,435 00	
Transferred from city treasury on account of the police signal system . . . . .	6,075 00	
Additional appropriation for in- crease in the number of pa- trolmen, by order of City Council . . . . .	3,000 00	
Additional appropriation to pur- chase land for stable for police signal system, by or- der of City Council . . . . .	2,000 00	
	<hr/>	\$42,510 00

## REGULAR POLICE OFFICERS.

Charles F. Richardson, city mar- shal . . . . .	\$1,700 00	
Charles E. Davis, captain of police . . . . .	1,200 00	
Charles P. Heustis, sergeant of police . . . . .	1,092 00	
James D. Henthorn, inspector .	810 00	
Noah F. Bosworth, patrolman .	1,000 00	
Charles T. Bartlett, patrolman .	1,000 00	
Wm. G. Bosworth, patrolman .	1,000 00	
Thomas C. Clay, patrolman .	1,000 00	
Frank B. Fletcher, patrolman .	1,000 00	
Ambrose M. Fuller, patrolman .	1,000 00	
Robert S. Harrison, patrolman .	1,000 00	
Edson C. Holmes, patrolman .	1,000 00	
A. F. A. G. Libby, patrolman .	1,000 00	
	<hr/>	
<i>Amounts carried forward</i>	\$13,802 00	\$42,510 00

<i>Amounts brought forward,</i>	\$13,802 00	\$42,510 00
Rufus H. Moulton, patrolman .	1,000 00	
John Purcill, patrolman .	1,000 00	
John W. Quilty, patrolman .	1,000 00	
John W. Conroy, patrolman .	995 20	
Charles O. Davis, patrolman .	995 20	
John Ryan, patrolman .	995 20	
William P. Soule, patrolman .	985 07	
Richard B. Conroy, patrolman .	960 02	
William A. Leonard, patrolman .	959 67	
Bernard F. Burke, patrolman .	891 13	
Richard T. Taffe, patrolman .	667 24	
Frederick M. Mitchell, patrolman	649 94	
William O. Harlow, patrolman .	632 82	
Guy S. Shannon, patrolman .	637 56	
Joshua H. Seaver, patrolman .	630 10	
John J. Davis, patrolman .	626 18	
John E. Dugan, patrolman .	511 54	
William C. Emerson, patrolman .	304 85	
James D. Henthorn, patrolman .	260 91	
Robert W. Blue, patrolman .	217 44	
Martin J. Nagle, patrolman .	61 74	
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	\$28,783 81	

## SPECIAL POLICE OFFICERS.

Richard T. Taffe . . .	\$230 40
Charles R. Young . . .	218 40
Daniel J. Corcoran . . .	158 40
Robert W. Blue . . .	127 20
Charles Tapply . . .	110 40
Thomas G. Bruce . . .	14 40
Hiram B. Hartford . . .	14 40

<i>Amounts carried forward</i>	\$29,657 41	\$42,510 00
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<i>Amounts brought forward</i>	\$29,657 41	\$42,510 00
Martin C. Laffie . . . .	9 60	
Reuben Chaplin . . . .	4 80	
Frank J. Bartlett . . . .	4 80	
Winslow J. Fiske . . . .	2 40	
	<hr/>	
	\$29,679 01	

## INCIDENTAL EXPENSES.

The Gamewell Fire Alarm Tele- graph Co., police patrol signal system . . . . .	\$4,800 00	
Nathaniel T. Allen, land on Cherry Street, for police pa- trol stable . . . . .	1,878 00	
H. W. Scott, pair of horses and board . . . . .	418 00	
Charles Miner, one horse and board . . . . .	255 00	
P. A. McVicar, new pung . . .	75 00	
Stephen F. Cate, board of horse, etc. . . . .	362 73	
Charles G. Tinkham, use of teams	17 50	
Robert Weir, use of teams . .	17 30	
John Purcill, use of teams . .	14 50	
S. L. Pratt, use of teams . . .	14 00	
Fitzgerald Bros., use of teams .	14 00	
Central Stables, use of teams .	11 50	
Henry C. Daniels, use of teams .	9 75	
E. V. Barkers, use of teams . .	5 00	
H. A. Spear, use of teams . . .	4 50	
N. F. Bosworth, use of teams .	4 00	
F. B. Spear, use of team . . . .	4 00	
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<i>Amounts carried forward</i>	\$37,583 79	\$42,510 00

<i>Amounts brought forward</i>	\$37,583 79	\$42,510 00
A. A. Sherman & Co., use of team . . . . .	2 00	
Robert S. Harrison, use of team .	2 00	
J. B. Stoddard, use of team .	2 00	
George Trowbridge, use of team .	1 00	
J. F. Coleman, use of team .	1 00	
William Ussher, clipping horse .	3 00	
John Ryan, conveyance of prison- ers . . . . .	110 54	
John Purcill, conveyance of prisoners . . . . .	80 50	
Frank B. Fletcher, conveyance of prisoners . . . . .	29 58	
R. B. Conroy, conveyance of prisoners . . . . .	19 25	
N. F. Bosworth, conveyance of prisoners . . . . .	4 00	
Robert S. Harrison, conveyance of prisoners . . . . .	3 00	
Edson C. Holmes, conveyance of prisoners . . . . .	2 28	
George W. Dearborn, meals for prisoners . . . . .	190 25	
F. D. Lancaster, meals for prison- ers . . . . .	12 75	
F. B. Fletcher, meals for prison- ers . . . . .	6 74	
G. W. Lamson, meals for prison- ers . . . . .	2 00	
Newton & Watertown Gas Light Co., gas . . . . .	165 80	
Water Department, use of water	40 83	
<i>Amounts carried forward</i>	<hr/> \$38,262 31	<hr/> \$42,510 00

<i>Amounts brought forward</i>	\$38,262 31	\$42,510 00
New England Telegraph & Telephone Co., rental of instruments for police patrol service . . . . .	311 50	
Dr. Fred. E. Crockett, use of stable for police patrol horses . . . . .	103 00	
C. F. Eddy & Co., coal . . . .	70 02	
Albert Brackett & Son, coal . . . .	25 00	
C. F. Eddy & Co., hay and grain . . . .	69 59	
Franklin Crosby, carpet . . . .	62 70	
D. Evans & Co., department buttons . . . . .	50 00	
C. Seaver, Jr., photographs . . . .	47 00	
C. G. Estés, brooms . . . . .	9 00	
Charles H. Stacy, telegrams . . . .	6 95	
C. H. Jenison, expressage . . . .	5 95	
Rose McCarthy, laundry work . . . .	3 50	
E. C. Holmes, laundry work . . . .	1 62	
Dr. Fred E. Crockett, medical examination of candidates for patrolmen . . . . .	67 00	
Dr. Fred E. Crockett, medical attendance . . . . .	20 00	
Dr. James H. Bodge, medical attendance . . . . .	8 00	
Dr. James Utley, medical attendance . . . . .	5 00	
Charles F. Richardson, sundry cash expenses . . . . .	120 19	
James D. Henthorn, sundry cash expenses . . . . .	161 36	
<i>Amounts carried forward</i>	\$39,409 69	\$42,510 00

<i>Amounts brought forward</i>	\$39,409 69	\$42,510 00
Edson C. Holmes, sundry cash expenses . . . . .	70 71	
Wm. G. Bosworth, sundry cash expenses . . . . .	7 10	
W. B. Randlett, sundry cash expenses . . . . .	2 77	
Charles F. Richardson, probation officer . . . . .	50 00	
H. D. Woods, plans for patrol stable . . . . .	32 25	
Nathan Nichols, services rendered	10 00	
George E. Wragg, services rendered . . . . .	6 00	
K. B. Pratt, stenographic service	4 00	
Alex. Griswold, material and labor . . . . .	321 45	
Wm. H. French & Co., material and labor . . . . .	73 86	
F. H. Humphrey, agt., material and labor . . . . .	31 54	
A. F. Libby, material and labor . . . . .	27 00	
H. H. Hunt, material and labor . . . . .	24 83	
Ward & Co., material and labor . . . . .	13 25	
E. W. Hodgson, material and labor . . . . .	5 75	
Thomas Sinclair, material and labor . . . . .	4 50	
C. A. Purdy, material and labor . . . . .	3 50	
M. Frank Lucas, material and labor . . . . .	2 50	
Clark Mfg. Co., material and labor	2 25	
S. B. Maxwell, labor cleaning cells	22 70	
<i>Amounts carried forward</i>	\$40,125 65	\$42,510 00

<i>Amounts brought forward</i>	\$40,125 65	\$42,510 00
George Carter, labor cleaning cells . . . . .	2 00	
J. A. Nugent, blacksmithing .	25 86	
P. A. McVicar, blacksmithing .	25 00	
J. C. Farrar, blacksmithing .	2 40	
John P. Lovell Arms Co., sup- plies . . . . .	264 37	
Cabot Brothers, supplies . .	205 07	
Aaron R. Gay & Co., supplies .	113 78	
Edwin Rogers and W. E. Decrow, supplies . . . . .	87 09	
The Gamewell Fire Alarm Tele- graph Co., supplies . . .	75 35	
C. A. Twitchell & Co., supplies .	42 25	
O. F. Lucas, supplies . . .	23 00	
Charles E. Berry, supplies . .	23 00	
H. A. Winship, supplies . . .	19 92	
Samuel O. Aborn, supplies . .	19 75	
C. A. Taylor, supplies . . .	18 00	
Albert F. Wright, supplies . .	17 85	
D. H. McWain, supplies . . .	15 15	
James H. Nickerson, supplies .	15 05	
Fred W. Huestis, supplies . .	10 00	
Fred. L. Cook, supplies . . .	9 66	
H. C. Dimond & Co., supplies .	5 35	
Dame, Stoddard & Kendall, sup- plies . . . . .	5 20	
The Electric Gas Lighting Co., supplies . . . . .	4 95	
J. B. Murphy, supplies . . .	3 03	
John P. Lovell Sons, supplies .	2 40	
John S. Sumner, supplies . . .	2 25	
<i>Amounts carried forward,</i>	\$41,163 38	\$42,510 00

<i>Amounts brought forward</i>	\$41,163 38	\$42,510 00
Howard B. Coffin, supplies . . . . .	1 75	
Sundry small bills . . . . .	10 61	

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Total, as per item No. 39 of expenses . . . . .		41,175 74
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Balance unexpended, transferred into excess and deficiency account . . . . .		\$1,334 26
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**Poor Out of Almshouse.**

Appropriation . . . . .		\$9,200 00
Nathan Mosman, City Almoner and Clerk of Board of Overseers . . . . .	\$1,000 00	
W. M. Russell, overseer, Ward 1 . . . . .	50 00	
John F. Payne, overseer, Ward 2 . . . . .	50 00	
Andrew J. Fiske, overseer, Ward 3 . . . . .	50 00	
Nathan Mosman, overseer, Ward 4 . . . . .	50 00	
Eugene Fanning, overseer, Ward 5 . . . . .	50 00	
George Warren, overseer, Ward 6 . . . . .	50 00	
H. C. Daniels, overseer, Ward 7 . . . . .	50 00	
Nathan Mosman, paid to sundry persons . . . . .	433 85	
Worcester Lunatic Hospital, care of sundry persons . . . . .	1,087 22	
Worcester Insane Asylum, care of sundry persons . . . . .	677 86	
Newton Cottage Hospital, care of sundry persons . . . . .	475 36	
Westborough Insane Hospital, care of sundry persons . . . . .	471 73	
Commonwealth of Massachusetts, care of sundry persons . . . . .	371 45	
<i>Amounts carried forward</i>	\$4,867 47	\$9,200 00

<i>Amounts brought forward</i>	\$4,867 47	\$9,200 00
Danvers Lunatic Hospital, care of sundry persons . . .	141 61	
Massachusetts School for the Feeble Minded, care Grace Eaton . . . . .	7 05	
City of Boston, partial support of poor . . . . .	247 28	
City of Waltham, partial support of poor . . . . .	68 08	
City of Lowell, partial support of poor . . . . .	18 50	
Town of Chicopee, partial sup- port of poor . . . . .	218 00	
Town of Westminster, partial support of poor . . . . .	140 05	
Town of North Andover, partial support of poor . . . . .	111 33	
Town of Duxbury, partial sup- port of poor . . . . .	83 78	
Town of Hingham, partial sup- port of poor . . . . .	81 19	
Town of Watertown, partial sup- port of poor . . . . .	40 16	
Town of Stoneham, partial sup- port of poor . . . . .	28 00	
Town of Sherborn, partial support of poor . . . . .	16 00	
Town of Natick, partial support of poor . . . . .	4 00	
Town of Phillipston, partial sup- port of poor . . . . .	3 49	
Dr. H. B. Stoddard, medical at- tendance . . . . .	91 50	
<i>Amounts carried forward</i>	<hr/> \$6,167 49	<hr/> \$9,200 00

<i>Amounts brought forward</i>	\$6,167 49	\$9,200 00
Dr. Thomas F. Carroll, medical attendance . . . . .	39 00	
Dr. Edward P. Scales, medical attendance . . . . .	34 00	
Dr. D. Waldo Stearns, medical attendance . . . . .	24 00	
Dr. G. H. Talbot, medical attendance . . . . .	20 00	
Dr. James Utley, medical attendance . . . . .	11 00	
Dr. W. H. Hildreth, medical attendance . . . . .	9 00	
Dr. F. M. O'Donnell, medical attendance . . . . .	6 00	
Dr. Albert Nott, medical attendance . . . . .	6 00	
Dr. F. E. Porter, medical attendance . . . . .	5 00	
Dr. J. J. Coxeter, medical attendance . . . . .	5 00	
Dr. James H. Bodge, medical attendance . . . . .	4 00	
Dr. S. A. Sylvester, medical attendance . . . . .	4 00	
Drs. O. E. & W. O. Hunt, medical attendance . . . . .	3 00	
John F. Payne, prescriptions . . . . .	107 49	
B. Billings, prescriptions . . . . .	11 95	
W. M. Russell, prescriptions . . . . .	8 05	
Geo. H. Ingraham, prescriptions . . . . .	5 15	
W. C. Gaudalet, prescription . . . . .	3 70	
Hubbard & Procter, prescription . . . . .	2 40	
<i>Amounts carried forward,</i>	<hr/> \$6,476 23	<hr/> \$9,200 00



<i>Amounts brought forward</i>	£6,476 23	£9,200 00
Stephen F. Cate, funeral expenses	27 00	
James McGourty, funeral expenses . . . . .	24 00	
John Flood, funeral expenses .	21 00	
George H. Gregg, funeral expenses . . . . .	15 00	
Wm. H. Mague, funeral expenses	10 00	
S. L. Pratt, funeral expenses .	10 00	
Newton Cemetery Corporation, interments . . . . .	14 00	
Stephen F. Cate, use of teams .	7 00	
Central Stables, use of teams .	6 50	
Roxbury Home, board of Miss Crawley . . . . .	72 00	
Miss Alice Williston, board of Alice Sullivan . . . . .	51 25	
Mrs. Ephraim Wilson, board of Azalia C. Teulon . . . . .	22 29	
Mrs. Thomas Smith, board of James Cole . . . . .	54 50	
John Fisk, aid to Geo. Collins .	8 29	
John R. Farnum, rent of house, Mrs. Pitts . . . . .	120 00	
Margaret A. Farrell, rent of house, Mrs. Fahey . . . . .	12 34	
Mrs. Margaret O'Brien, nursing Mrs. Fahey . . . . .	10 00	
Fanning Printing Co., postal cards	5 50	
James D. Henthorn, sundry cash expenses . . . . .	4 06	
W. J. Burnett, milk . . . . .	12 81	
John V. Sullivan, shoes . . . . .	6 25	
<i>Amounts carried forward</i>	£6,990 02	£9,200 00

<i>Amounts brought forward</i>	\$6,990 02	\$9,200 00
E. E. Moody, shoes . . .	6 00	
E. Vickers, provisions . . .	61 20	
H. P. Dearborn, provisions . . .	5 12	
A. A. Savage, groceries . . .	271 35	
A. R. Pitts, groceries . . .	116 60	
Cooper & Dyson, groceries . . .	110 55	
W. O. Knapp & Co., groceries . . .	106 91	
C. Strout & Sons, groceries . . .	90 40	
B. F. Houghton, groceries . . .	87 70	
Frank A. Childs, groceries . . .	83 80	
G. P. Atkins, groceries . . .	83 28	
Fred. L. Cook, groceries . . .	78 47	
Alonzo Whitney, groceries . . .	66 00	
J. B. Murphy, groceries . . .	56 13	
W. B. Whittier, groceries . . .	54 00	
H. A. Sherman, groceries . . .	51 50	
H. E. Woodberry, groceries . . .	49 00	
M. Mahoney, groceries . . .	34 00	
Howard B. Coffin, groceries . . .	28 10	
D. H. Fitch, groceries . . .	25 93	
Daniel Warren, groceries . . .	21 50	
John Beal, groceries . . .	12 45	
Wm. Dyson, groceries . . .	10 73	
Wm. Bresnahan, groceries . . .	9 00	
C. O. Tucker & Co., groceries . . .	8 00	
I. R. Stevens, groceries . . .	6 00	
Boston Branch Grocery, groceries . . .	2 00	
Albert Brackett & Son, fuel . . .	240 24	
C. F. Eddy & Co., fuel . . .	133 00	
J. W. Hill, fuel . . .	115 93	
J. W. Mitchell, fuel . . .	76 81	
Almshouse, fuel . . .	69 75	
<i>Amounts carried forward</i>	\$9,161 47	\$9,200 00

<i>Amounts brought forward</i>	\$9,161 47	\$9,200 00
B. C. Baker, fuel . . . .	60 86	
Newton Coal Co., fuel . . .	43 79	
Daniel Archibald, supplies . .	4 50	
Sundry small bills . . . .	6 80	

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Total, as per item No. 40 of expenses .		9,277 42
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Amount overdrawn, transferred into excess and deficiency account . . . .		\$77 42
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**Public Property.**

Appropriation . . . . .		\$12,000 00
Simpson Brothers, concreting .	\$1,458 89	
John Doyle estate, land for alms- house building . . . .	1,000 00	
J. S. Potter, incandescent wiring City Hall . . . . .	276 75	
McClintock & Woodfall, map of almshouse property . . .	186 00	
Kendall & Stevens, plans for pa- trol stable . . . . .	150 00	
Kendall & Stevens, plans for en- gine house, Newton High- lands . . . . .	100 00	
Kendall & Stevens, plans for Waban school house . . .	100 00	
Newton & Watertown Gas Light Co., gas . . . . .	129 20	
Water Department, use of water	89 91	
Hartford Steam Boiler Inspection and Insurance Co., insurance of boilers . . . . .	75 00	
<i>Amounts carried forward</i>	\$3,565 75	\$12,000 00

<i>Amounts brought forward</i>	\$3,565 75	\$12,000 00
Joel Goldthwait & Co., carpets .	60 45	
John H. Pray, Sons & Co., carpets	54 09	
Samuel A. Piper, case of drawers	43 25	
Charles Hopkins, chairs . . .	33 00	
Wyckoff, Seamans & Benedict .	30 00	
F. G. Barnes & Son, insurance premium . . . . .	30 00	
J. L. Randall, care Prospect school hall . . . . .	120 00	
Newton Journal, advertising .	20 75	
The Newton Graphic, advertising	10 25	
E. L. & F. S. Rollins, shades .	16 92	
Stephen F. Cate, use of teams .	25 00	
Henry C. Daniels, use of teams .	20 00	
Newton Oderless Excavating Co., cleaning cesspool . . . . .	17 50	
C. H. Jenison, expressage . . .	3 40	
J. C. Farrar, blacksmithing .	9 00	
Charles A. Cole, blacksmithing .	5 00	
William Pettigrew, material and labor . . . . .	1,124 30	
Stephen Holmes, material and labor . . . . .	457 70	
Wm. H. French & Co., material and labor . . . . .	414 22	
H. H. Hunt, material and labor .	411 87	
W. E. Porter, material and labor .	382 00	
Walworth Construction & Supply Co., material and labor . . . . .	377 05	
J. M. Briggs, material and labor	327 00	
Charles A. Hill, material and labor	283 11	
Henry F. Ross., material and labor	257 02	
Geo. S. Noden, material and labor	225 20	
<i>Amounts carried forward</i>	\$8,323 83	\$12,000 00

<i>Amounts brought forward</i>	\$8,323 83	\$12,000 00
Isaac Smith, material and labor .	218 97	
Walker & Pratt Mfg. Co., material and labor . . . .	185 83	
O. F. Lucas, material and labor .	169 77	
M. C. Higgins, material and labor	157 56	
Higgins & Nickerson, material and labor . . . .	134 29	
W. P. Leavitt & Son, material and labor . . . .	113 25	
Milo Lucas, material and labor .	109 94	
Seth W. Fuller, material and labor	105 00	
C. Keiser, material and labor .	101 29	
Wm. L. Stiles, Jr., material and labor . . . .	89 89	
O. B. Leavitt, material and labor	89 57	
F. H. Humphrey, agt., material and labor . . . .	80 65	
Sidney G. Steeves, material and labor . . . .	80 52	
Arthur Muldoon, material and labor . . . .	67 25	
F. E. Hamblin, material and labor	60 12	
S. K. MacLeod, material and labor	57 00	
A. W. Snow, material and labor	56 02	
W. H. Lynch & Co., material and labor . . . .	48 00	
Geo. B. Randall, material and labor . . . .	44 98	
D. O. Driscoll, material and labor	41 00	
Allen & Barry, material and labor	39 71	
J. C. Newcomb, material and labor	36 77	
Russell Freeman material and labor . . . .	35 81	
<i>Amounts carried forward</i>	\$10,447 02	\$12,000 00



<i>Amounts brought forward</i>	£10,447 02	£12,000 00
Peter C. Baker, material and labor	34 04	
J. E. Trowbridge, material and labor . . . . .	34 00	
L. H. Cranitch, material and labor	32 24	
S. D. Garey, material and labor .	27 40	
Patrick O'Brien, material and labor . . . . .	24 50	
Bemis & Jewett, material and labor . . . . .	22 95	
Henry F. Wellington, material and labor . . . . .	22 52	
W. J. Maguire, material and labor	21 62	
L. A. Gammons, material and labor . . . . .	19 67	
Hiram Ross, material and labor .	19 55	
G. M. D. Fernald, material and labor . . . . .	17 21	
Walworth Mfg. Co., material and labor . . . . .	16 56	
T. J. Hartnett, material and labor	16 08	
Robert Blair, material and labor	11 33	
Garey & English, material and labor . . . . .	10 52	
Myles J. Joyce, material and labor	10 50	
Edward Pike, material and labor	10 26	
Hall & Washburn, material and labor . . . . .	8 80	
J. L. Sears, material and labor .	7 50	
J. O. Evans' Sons, material and labor . . . . .	7 45	
Fred. E. Whiting, material and labor . . . . .	6 90	
<i>Amounts carried forward</i>	£10,828 62	£12,000 00

## EXPENSES IN DETAIL.

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<i>Amounts brought forward</i>	\$10,828 62	\$12,000 00
C. W. Coleman, material and labor	6 24	
Geo. Spring, material and labor .	5 73	
Thomas G. Bruce, material and labor . . . . .	5 70	
J. D. Billings, material and labor	5 50	
H. W. Pierce, material and labor	5 21	
W. F. Whittemore, material and labor . . . . .	4 37	
F. T. Burgess, material and labor	4 10	
Gustav W. Ulmer, material and labor . . . . .	3 00	
George L. Avery, material and labor . . . . .	2 50	
Ralph Davenport, material and labor . . . . .	2 00	
Timothy Stuart & Son, labor men and teams . . . . .	572 30	
Joshua L. Randall, labor, etc. .	18 13	
John Irving, trees, etc. . . .	17 00	
S. O. Thayer & Co., supplies .	180 85	
Charles Hopkins, supplies . .	16 50	
Atherton Rubber Co., supplies .	9 00	
C. W. Morehouse, supplies . .	7 43	
Albert F. Wright, supplies . .	6 50	
Barber Brothers, supplies . .	3 18	
Henry W. Wellington, supplies .	2 98	
Thomas O. Callahan, supplies .	2 50	
H. A. Sherman, supplies . . .	2 05	
Sundry small bills . . . . .	10 51	
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Total, as per item No. 41 of expenses .		11,721 90
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Balance unexpended, transferred into excess and deficiency account . . . . .		\$278 10

**Premium on Tax Sale.**

Paid Francis L. Richardson in conformity with section 35, chapter 12 of the Public Statutes, as per item No. 42 of expenses	\$97 00
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**Read Fund Income.**

Paid to sundry parties, in accordance with the will of the late Charles A. Read, income received from the trustees, upon investments, as per item No. 43 of expenses	\$1,579 24
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**Removal of Ashes.**

Appropriation	\$5,000 00
John A. Kenrick, Treasurer, labor men and teams, Highway Department	\$3,927 12
Wm. H. Thompson, one horse	275 00
J. Puleifer, new wagon	130 00
A. Danforth, agt., blacksmithing	67 35
E. W. Hodgson, material and labor	22 25
W. Rand, material and labor	7 00
Sundry small bills	3 35
Total, as per item No. 44 of expenses	4,432 07

Balance unexpended, transferred into excess and deficiency account	\$567 93
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**Salaries.**

Appropriation	\$14,575 00
Heman M. Burr, Mayor	\$1,000 00
Isaac F. Kingsbury, City Clerk	2,000 00
John C. Brimblecom, Assistant City Clerk	1,000 00
<i>Amounts carried forward</i>	\$4,000 00
	\$14,575 00



<i>Amounts brought forward</i>	\$4,000 00	\$14,575 00
John A. Kenrick, City Treasurer and Collector of Taxes . . . . .	3,000 00	
Moses Clark, Jr., Assistant Treasurer and Deputy Col- lector . . . . .	1,800 00	
Benjamin F. Otis, City Auditor . . . . .	2,200 00	
Winfield S. Slocum, City Solici- tor . . . . .	1,250 00	
Joseph D. Wellington, City Mes- senger . . . . .	1,200 00	
Theo. A. Fleu, assistant to City Auditor . . . . .	700 00	
Joseph D. Wellington, sealer weights and measures . . . . .	75 00	
John C. Brimblecom, Clerk of Common Council . . . . .	200 00	
William S. French, milk inspector . . . . .	50 00	
John C. Brimblecom, services compiling ancient records . . . . .	25 00	
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Total, as per item No. 45 of expenses . . . . .		14,500 00
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Balance unexpended, transferred into excess and deficiency account . . . . .		\$75 00

**Evening Schools.**

Appropriation . . . . .		\$1,000 00
George M. Weed, teacher . . . . .	\$99 00	
M. Ethelyn Stearns, teacher . . . . .	49 50	
Jennie A. Preston, teacher . . . . .	49 50	
Florence Sampson, teacher . . . . .	49 50	
Sarah F. Dorney, teacher . . . . .	49 50	
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<i>Amounts carried forward</i>	\$297 00	\$1,000 00

<i>Amounts brought forward</i>	\$297 00	\$1,000 00
W. M. Jones, teacher . . .	45 00	
Alonzo R. Weed, teacher . .	64 00	
Anna S. Thompson, teacher .	40 00	
Wm. J. Watkins, teacher . .	99 00	
Alice E. Macomber, drawing teacher . . . . .	46 00	
Georgia L. Norton, drawing teacher . . . . .	66 00	
J. L. Randall, janitor . . .	24 75	
Mary Welch, janitor . . . .	24 75	
Higgins & Nickerson, material and labor . . . . .	7 65	
James Dorney, labor . . . .	6 00	
Newton Journal, printing . .	5 50	
George W. Bush, use of team .	2 00	
George S. Perry, supplies . .	41 90	
Thorpe and Adams Mfg. Co., sup- plies . . . . .	7 84	
H. A. Sherman, supplies . . .	2 40	
American Book Co., supplies .	73	
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Total, as per item No. 46 of expenses .		780 52
		<hr/>
Balance unexpended, transferred into excess and deficiency account . . . .		\$219 48

**Schools.**

## GENERAL APPROPRIATION, EDUCATIONAL DEPARTMENT.

General appropriation for schools . . . . .	\$108,500 00
Received from dog tax for 1889, by order of City Council . .	2,911 94
<hr/>	
<i>Amount carried forward</i>	\$111,411 94

<i>Amount brought forward</i>	\$111,411 94	
Transferred to appropriation for school incidentals by order of City Council . . .	2,425 00	
	<hr/>	\$108,986 94

## EXPENDITURES IN DETAIL.

Thomas Emerson, Superinten- dent . . . . .	\$2,000 00	
Thomas Emerson, Secretary School Board . . . . .	225 00	
Albert L. Harwood, Secretary of School Board . . . . .	75 00	
	<hr/>	\$2,300 00

*High School.*

Edward J. Goodwin, head master	\$3,000 00	
Ezra W. Sampson, master . . .	2,200 00	
S. Warren Davis, assistant master	2,000 00	
Andrew J. George, assistant mas- ter . . . . .	1,800 00	
George L. Chandler, assistant master . . . . .	1,800 00	
Marguerite W. Abbott, assistant .	1,200 00	
Maybell P. Davis, assistant . .	1,000 00	
Emma F. Johnson, assistant . .	1,000 00	
Frances P. Owen, assistant . .	1,000 00	
Minerva E. Leland, assistant . .	1,000 00	
Josie A. Davis, assistant . . .	968 75	
Anna W. Burbank, assistant . .	918 75	
Abby B. Bates, assistant . . .	337 50	
Julia N. Cole, assistant . . .	168 75	
Narcissa A. Weeks, substitute .	42 00	
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<i>Amounts carried forward</i>	\$20,735 75	\$108,986 94

<i>Amounts brought forward</i>	\$20,735 75	\$108,986 94
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*Special Teachers.*

Ida Collins, drawing and writing	930 00
Alice E. Macomber, drawing .	320 00
Jennie E. Ireson, calisthenics and elocution . . . . .	837 50
Horace M. Walton, instruction in music . . . . .	1,500 00
George H. Benyon, military drill	400 00
Ellen L. Bond, sewing . . .	450 00
Julia Grant, sewing . . . .	450 00
Sarah L. Dix, sewing . . . .	224 99
	<hr/>
	\$25,848 24

*Bigelow School.*

H. Chapin Sawin, master . . .	\$1,900 00
Martha M. Bakeman, first assis- tant . . . . .	700 00
Annie E. George, assistant . .	620 00
Emily J. Dyer, assistant . . .	620 00
Elizabeth Ayles, assistant . .	620 00
Ellen B. Prime, assistant . . .	620 00
Florence H. Griffin, assistant .	576 25
Ella M. Donkin, assistant . . .	576 25
	<hr/>
	\$32,080 74

*Underwood School.*

Charlotte E. Sewall, principal .	\$700 00
Ada L. Donkin, assistant . . .	620 00
Annie L. Wood, assistant . . .	573 50
Josephine W. Littlefield, assistant	620 00
Anna R. Smith, substitute . . .	46 50
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<i>Amounts carried forward</i>	\$34,640 74	\$108,986 94
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*Amounts brought forward,*                    \$34,640 74    \$108,986 94

*Lincoln School.*

Nellie B. Rand, principal .	\$700 00
Mary E. Wall, assistant . .	620 00
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	\$35,960 74

*Eliot School.*

George G. Edwards, master .	\$1,900 00
Louise W. Burbank, first assistant	700 00
Louise W. Clelland, assistant .	620 00
Anna L. Hazelton, assistant .	620 00
H. Augusta Millard, first assistant	35 00
	<hr/>
	\$39,835 74

*Jackson School.*

Eliza J. Lovely, principal . .	\$700 00
Lottie E. Stearns, assistant .	620 00
Martha A. Lovely, assistant .	620 00
Anna A. Early, assistant . .	518 75
Lillian E. Rogers, assistant .	518 75
	<hr/>
	\$42,813 24

*Adams School.*

William A. Spinney, master .	\$1,187 50
J. W. Applebee, master . .	237 50
Abbie I. Fiske, first assistant .	700 00
Mary A. Wellington, assistant .	620 00
Angelia A. Smith, assistant .	620 00
Gertrude G. Tewksbury, assistant	620 00
Myra I. Billings, assistant . .	545 00
Harriette B. Spooner, assistant .	175 00
	<hr/>

*Amounts carried forward*                    \$47,518 24    \$108,986 94

*Amounts brought forward*                      \$47,518 24      \$108,986 94

*Claflin School.*

Herbert F. Sylvester, master	.	\$1,900 00
Anna C. Merrett, first assistant	.	700 00
Ellen S. Tewksbury, assistant	.	620 00
Isabel N. Gladwin, assistant	.	518 75
J. Angeline Smith, assistant	.	312 50
M. Ethelyn Stearns, assistant	.	258 75
Lillian M. Hobart, assistant	.	187 50
Emily F. Wheeler, assistant	.	137 50
Rosa E. Searle, assistant	.	62 00
Lydia A. Brierley, assistant	.	31 00
		<hr/>
		\$52,246 24

*Peirce School.*

Levi F. Warren, master	.	\$1,900 00
Sarah A. Warren, first assistant	.	700 00
Eliza E. Simmons, assistant	.	620 00
Helen H. Rogers, assistant	.	620 00
Martha M. Dix, assistant	.	480 00
Alice M. Small, assistant	.	434 00
Nora Taft, assistant	.	325 50
Mabel A. Langley, assistant	.	272 26
Blanche E. Heard, assistant	.	62 00
Emily F. Wheeler, assistant	.	62 00
Jennie P. Moorehouse, substitute		9 30
		<hr/>
		\$57,731 30

*Davis School.*

M. Alice Warren, principal	.	\$700 00
Alice M. Wormwood, assistant	.	620 00
Sarah E. Foster, assistant	.	620 00
Ada P. Zeigler, assistant	.	576 25
		<hr/>

<i>Amounts carried forward</i>		\$60,247 55	\$108,986 94
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<i>Amounts brought forward</i>	\$60,247 55	\$108,986 94
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*Franklin School.*

Elizabeth F. Paddock, principal .	\$700 00
Clara H. Thompson, assistant .	620 00
Margaret A. Mague, assistant .	620 00
Alice M. Nelson, assistant .	576 25
	<hr/>
	\$62,763 80

*Barnard School.*

Calista S. Wood, principal .	\$700 00
Susan E. Copeland, assistant .	620 00
Lizzie F. Jones, assistant .	620 00
Anna G. Swain, assistant .	223 20
Mabel A. Langley, assistant .	4 50
	<hr/>
	\$64,931 50

*Williams School.*

John O. Godfrey, master .	\$1,870 00
Helen S. Tolman, first assistant .	700 00
Kate A. Glynn, assistant .	620 00
Ann B. Smith, assistant .	620 00
Edith A. Matteson, assistant .	620 00
Dora A. Allen, assistant .	620 00
Florence L. Wilson, assistant .	576 25
Celia P. Battles, assistant .	312 50
Caroline Y. Wentworth, assistant	232 50
	<hr/>
	\$71,102 75

*Hamilton School.*

Luther E. Leland, master .	\$1,900 00
Anna G. Swain, first assistant .	448 00
Ellen M. Leland, assistant .	620 00
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<i>Amounts carried forward</i>	\$74,070 75	\$108,986 94
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<i>Amounts brought forward</i>	\$74,070 75	\$108,986 94
Blanche E. Henshaw, assistant .	518 75	
Orissa M. Baxter, assistant .	155 00	
Mabel A. Langley, assistant .	49 50	
	<hr/>	
	\$74,794 00	

*Prospect School.*

Charles E. Hussey, master .	\$1,900 00	
Martha L. Perkins, first assistant	700 00	
Ella F. Crooker, assistant .	620 00	
Linda E. Nickelson, assistant .	576 75	
Mary P. Fanning, assistant .	387 00	
Lucy A. Hayward, assistant .	341 00	
Marion E. Marsh, assistant .	187 50	
M. Ethelyn Stearns, assistant .	135 00	
Sarah E. Stuntz, assistant .	93 00	
	<hr/>	
	\$79,734 25	

*Hyde School.*

George A. Moore, master .	\$1,900 00	
Charlotte E. Cameron, first as-		
sistant . . . . .	437 50	
Margaret E. Atkins, first assistant	262 50	
Gertrude Blackmar, assistant .	620 00	
Flora M. Stuart, assistant .	620 00	
N. Grace Gould, assistant .	620 00	
Harriet J. Brooks, assistant .	434 00	
Kate S. Chapman, assistant .	182 90	
Hattie A. Cawley, substitute .	1 88	
	<hr/>	

<i>Amounts carried forward</i>	\$84,813 03	\$108,986 94
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<i>Amounts brought forward</i>	\$84,813 03	\$108,986 94
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*Mason School.*

Albert L. Harwood, master	. \$1,187 50
William A. Spinney, master	. 712 50
Ellen S. Baker, first assistant	. 700 00
Maria F. Wood, assistant	. 620 00
Roberta J. Hardy, assistant	. 620 00
Georgia P. Bucknam, assistant	. 620 00
Della E. Noyes, assistant	. 620 00
Mary Tenney, assistant	. 468 88
Myra A. Fletcher, assistant	. 232 50
Lottie A. Tomlinson, assistant	. 139 50
	<hr/>
	\$90,733 91

*Rice School.*

Mary E. Mason, principal	. \$700 00
Margaret Martin, assistant	. 620 00
Adelaide L. Thompson, assistant	620 00
Jennie P. Baker, assistant	. 620 00
	<hr/>
	\$93,293 91

*Oak Hill School.*

Theodora A. Chase, principal	. \$518 75
	<hr/>
	\$93,812 66

*Thompsonville School.*

Helen A. Davis, principal	. \$700 00
	<hr/>
	\$94,512 66

*Waban School.*

Harriet E. Colburn, principal	. \$31 00	
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<i>Amounts carried forward</i>	\$94,543 66	\$108,986 94

<i>Amounts brought forward</i>	\$94,543 66	\$108,986 94
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*Janitors.*

John Cummings, High . . .	\$613 00
Michael F. Powers, High . . .	480 00
Charles R. Young, Bigelow and Underwood . . . . .	768 00
Honorah Sweeney, Lincoln . . .	144 00
Mary Welch, Eliot and Jackson . .	588 00
Mary A. Delaney, Adams . . .	360 00
John Dorney, Claflin . . . . .	360 00
George Cross, Peirce . . . . .	360 00
James H. Proctor, Davis . . . .	264 00
Bridget Cox, Franklin . . . . .	264 00
John Woody, Barnard . . . . .	264 00
Martin Walsh, Williams . . . .	540 00
James H. Boit, Hamilton . . . .	276 00
Joshua L. Randall, Prospect . . .	372 00
George M. Geyer, Hyde . . . . .	360 00
Albert C. Marston, Mason and Rice . . . . .	708 00
William E. Wiswall, Oak Hill . . .	108 00
John A. Hahn, Thompsonville . . .	96 00

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\$101,468 66

*Fuel.*

C. F. Eddy & Co., coal . . . . .	\$5,468 86
J. W. Mitchell, coal . . . . .	1,688 94
Albert Brackett & Son, coal . . . .	53 11
Almshouse, wood . . . . .	292 50
George Warren & Co., wood . . . .	5 50

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Total, as per item No. 47 of expenses . .	108,977 57
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Balance unexpended, transferred into excess and deficiency account . . . . .	\$9 37
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**School Incidentals.**

Appropriation . . . . .	\$9,500 00	
Transferred from general appropriation for schools, by order of City Council . . . . .	2,425 00	
	<hr/>	\$11,925 00
American Book Co., books . . . . .	\$589 02	
William Ware & Co., books . . . . .	576 17	
D. C. Heath & Co., books . . . . .	518 67	
Ginn & Co., books . . . . .	493 58	
Lee & Sh��pard, books . . . . .	493 02	
Willard Small, books . . . . .	176 32	
J. B. Lippincott & Co., books . . . . .	142 40	
Effingham, Maynard & Co., books . . . . .	138 30	
J. H. Daniels, books . . . . .	117 65	
D. Appleton & Co., books . . . . .	91 42	
Van Antwerp, Bragg & Co., books . . . . .	90 00	
Leach, Shewell & Sanborn, books . . . . .	89 12	
Allyn & Bacon, books . . . . .	80 25	
Edwin E. Babb & Co., books . . . . .	71 99	
Adams, Putnam & Co., books . . . . .	66 25	
Houghton, Mifflin & Co., books . . . . .	59 20	
Harper & Brother, books . . . . .	52 77	
Carl Schoenoff, books . . . . .	48 25	
Harrison, Hume & Co., books . . . . .	36 64	
F. W. Ambrose, books . . . . .	26 25	
Ivison, Blakeman & Co., books . . . . .	23 40	
Warren P. Adams, books . . . . .	18 11	
C. W. Seaver, books . . . . .	4 80	
Interstate Publishing Co., books . . . . .	3 34	
A. C. Stockin, books . . . . .	2 97	
Water Department, use of water . . . . .	512 45	
	<hr/>	
<i>Amounts carried forward</i>	\$4,522 34	\$11,925 00

<i>Amounts brought forward</i>	\$4,522 34	\$11,925 00
Newton & Watertown Gas Light Co., gas . . . . .	128 55	
Newton Oderless Excavating Co., cleaning cesspools . . . .	162 50	
N. E. Telephone & Telegraph Co., rentals . . . . .	31 80	
M. E. Sherwood, clerical assistance . . . . .	217 00	
Mary L. Aldrich, clerical assistance . . . . .	3 00	
Frank H. Burt, stenographic service . . . . .	5 00	
George E. Bridges, taking census of children from 5 to 15 . .	100 00	
Ellen L. Bond, traveling expenses	42 05	
Thomas Emerson, traveling expenses . . . . .	17 84	
Martha M. Dix, traveling expenses	12 97	
Julia Grant, traveling expenses . . . . .	7 32	
Sarah L. Dix, traveling expenses	6 32	
M. C. Laffie, truant officer . . . . .	112 25	
W. J. Fiske, truant officer . . . . .	22 75	
Charles R. Young, truant officer	6 25	
J. W. Howe, truant officer . . . . .	4 88	
George Linn, truant officer . . . . .	2 00	
Robert Burlen, binding books . . . . .	168 29	
J. D. F. Brooks, binding books . . . . .	166 04	
Newton Journal, printing . . . . .	202 75	
Fanning Printing Co., printing . . . . .	161 75	
The Newton Graphic, printing . . . . .	138 60	
John B. Turner, stamps . . . . .	42 50	
A. L. Harwood, stamps . . . . .	7 00	
<i>Amounts carried forward</i>	<hr/> \$6,291 75	<hr/> \$11,925 00

<i>Amounts brought forward</i>	\$6,291 75	\$11,925 00
A. G. Whitcomb, furniture .	686 70	
Holland & Daniels, furniture .	47 50	
J. D. Billings, furniture . .	25 06	
J. N. Bacon, rent of Eliot hall .	37 50	
Stephen F. Cate, use of teams .	21 00	
H. C. Daniels, use of teams .	16 10	
H. A. Spear, use of team . .	2 00	
J. Frank Makee, use of team .	2 00	
F. H. Hunting, expressage . .	15 00	
Geo. L. Pearson, expressage .	2 75	
Bullard estate, expressage . .	2 00	
J. A. Swasey, blackboards and repairs . . . . .	245 75	
Sidney G. Steeves, material and labor . . . . .	95 47	
Milo Lucas, material and labor .	91 30	
L. D. Whittimore, Jr., material and labor . . . . .	85 00	
Higgins & Nickerson, material and labor . . . . .	74 47	
H. S. Williams, material and labor	61 06	
Wm. Read & Sons, material and labor . . . . .	45 95	
Charles Coleman, material and labor . . . . .	38 30	
O. B. Leavitt, material and labor	32 99	
J. F. Horrigan, material and labor	30 13	
H. W. Calder, material and labor	26 80	
Bemis & Jewett, material and labor . . . . .	24 96	
Gustav W. Ulmer, material and labor . . . . .	20 75	
<i>Amounts carried forward</i>	<hr/> \$8,022 29	<hr/> \$11,925 00

<i>Amounts brought forward</i>	\$8,022 29	\$11,925 00
Henry M. Burr & Co., material and labor . . . . .	20 40	
Henry F. Wellington, material and labor . . . . .	19 73	
George H. Brown, material and labor . . . . .	19 50	
D. H. McWain, material and labor	14 35	
Ralph Davenport, material and labor . . . . .	11 25	
John C. Haynes & Co., material and labor . . . . .	9 75	
A. S. Buckingham, material and labor . . . . .	6 50	
W. F. Whittemore, material and labor . . . . .	5 35	
J. E. Trowbridge, material and labor . . . . .	5 17	
R. M. Yale & Co., material and labor . . . . .	3 85	
Gustave Weinscheuk, material and labor . . . . .	3 50	
Bent & Bush, material and labor	3 50	
Wm. T. Vose, material and labor	3 00	
J. L. Randall, material and labor	2 00	
James Dorney, labor . . . . .	60 50	
Thomas Johnson, labor . . . . .	40 00	
Mrs. Hodges, cleaning Claffin school . . . . .	20 85	
Simon A. White, cleaning carpets	11 30	
George S. Perry, supplies . . . .	1,295 01	
Thorpe Adams Mfg. Co., supplies	1,086 23	
Educational Supply Co., supplies	379 51	
<i>Amounts carried forward</i>	<hr/> \$11,043 54	<hr/> \$11,925 00

## EXPENSES IN DETAIL.

153

<i>Amounts brought forward</i>	\$11,043 54	\$11,925 00
W. C. Gaudelet, supplies . . .	161 82	
Silver, Burdett & Co., supplies . .	156 00	
Thomas Hall, supplies . . .	119 80	
T. H. Rollinson, supplies . . .	80 00	
City of Newton, supplies . . .	53 41	
Peabody & Whitney, supplies . .	42 04	
Boston School Supply Co., supplies	31 48	
Lappen Brothers, supplies . . .	31 36	
Oliver Ditson & Co., supplies . .	24 25	
O. F. Lucas, supplies . . .	25 68	
J. L. Hammett, supplies . . .	18 00	
Dame, Stoddard & Kendall, sup- plies . . . . .	13 55	
George Frost & Co., supplies . .	10 75	
John V. Sullivan, supplies . . .	9 78	
C. A. Twitchell & Co., supplies . .	8 00	
Stevens Brothers, supplies . . .	7 20	
C. J. Bailey & Co., supplies . . .	5 95	
Burdett & Williams, supplies . .	5 12	
Lillian F. Norton, supplies . . .	5 00	
Wilson, Larrabee & Co., supplies	4 83	
John McNamara, supplies . . .	4 80	
I. R. Stevens, supplies . . .	4 73	
R. H. White & Co., supplies . . .	4 00	
W. B. Saddler, supplies . . .	4 00	
Francis Murdock & Co., supplies	3 45	
C. W. Morehouse, supplies . . .	3 32	
Blake, Bell & Co., supplies . . .	3 00	
A. B. Putney, supplies . . .	3 00	
Joseph Breck & Sons, supplies . .	3 00	
Walker, Stetson, Sawyer & Co., supplies . . . . .	2 89	
<i>Amounts carried forward</i>	\$11,893 75	\$11,925 00

<i>Amounts brought forward,</i>	\$11,893 75	\$11,925 00
Irving W. Wheeler & Co., awnings . . . . .	10 00	
Sundry small bills . . . . .	11 35	
	<hr/>	
Total, as per item No. 48 of expenses .		11,915 10
		<hr/>
Balance unexpended, transferred into excess and deficiency account . . . . .		\$9 90

**Sewerage.**

Appropriation . . . . .		\$2,000 00
Edward A. Buss, services on plans	\$1,129 52	
Rudolph Hering, professional consultation . . . . .	170 00	
Eliot C. Clark, professional consultation . . . . .	50 00	
Fred. H. Barnes, et al., services on plans . . . . .	523 00	
Albert F. Noyes, sundry cash expenses . . . . .	56 24	
Miss Cushing, type writing, etc.	33 90	
Stephen F. Cate, use of teams .	11 00	
Charles H. Stacy, telegrams .	4 85	
Frost & Adams, supplies . .	12 75	
Coburn Brothers, supplies . .	2 60	
	<hr/>	
Total, as per item No. 49 of expenses .		1,993 86
		<hr/>
Balance unexpended, transferred into excess and deficiency account . . . . .		\$6 14

**Sinking Fund — City Debt.**

Appropriation . . . . .	\$22,000 00
Amount paid commissioners of sinking fund, as per item No. 50 of expenses . . .	22,000 00



**Sinking Fund — School Loan.**

Appropriation . . . . .	\$4,000 00
Amount paid commissioners of sinking fund, as per item No. 51 of expenses . . . .	4,000 00

**Sinking Fund — Water Bonds.**

Appropriation . . . . .	\$22,000 00
Amount paid commissioners of sinking fund, as per item No. 52 of expenses . . . .	22,000 00

**Soldiers' Relief.**

Transferred from appropriation for indigent soldiers and sailors, by order of City Council . . . . .	\$200 00
Paid to soldiers' widows, as per item No. 53 of expenses . . . . .	144 00
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Balance unexpended, transferred into excess and deficiency account . . . . .	\$56 00

**State Aid.**

Appropriation . . . . .	\$1,000 00
William Watson . . . . .	\$72 00
Joseph Bergeron . . . . .	60 00
Joshua V. Ramsdell . . . . .	52 00
Mary Allen . . . . .	48 00
Anna C. Boyd . . . . .	48 00
Mary Duran . . . . .	48 00
Thomas Dennon . . . . .	48 00
Sarah Fell . . . . .	48 00
Hugh Hamill . . . . .	48 00
Catherine McAleer . . . . .	48 00
<hr/>	
<i>Amounts carried forward</i>	\$520 00      \$1,000 00

<i>Amounts brought forward</i>	\$520 00	\$1,000 00
Agnes Myers . . . .	48 00	
Susan A. Nutting . . . .	48 00	
Thomas Probert . . . .	48 00	
Ellen Russell . . . .	48 00	
Bridget A. Wright . . . .	48 00	
Amelia M. Young . . . .	48 00	
Almira Messer . . . .	40 00	
James Delaney . . . .	36 00	
Albert C. Dearborn . . . .	36 00	
Almira D. Hall . . . .	36 00	
Mary A. Mann . . . .	32 00	
Sarah W. White . . . .	24 00	
Sylvanus H. Wight . . . .	20 00	
Mary A. Sullivan . . . .	16 00	
Timothy Kennedy . . . .	13 50	
George F. Green . . . .	8 00	
Caroline Williams . . . .	4 00	
Cyrus L. Williams . . . .	4 00	

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Total, as per item No. 54 of expenses . . . . .		1,077 50
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Amount overdrawn, transferred into excess and deficiency account . . . . .		\$77 50
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#### Street Light Department.

Appropriation . . . . .	\$24,000 00	
Additional appropriation by order of City Council . . . . .	1,500 00	
		\$25,500 00
Newton & Watertown Gas Light Co., for gas and care 766 lamps . . . . .	\$9,186 00	
<i>Amounts carried forward</i>	\$9,186 00	\$25,500 00

## EXPENSES IN DETAIL.

157

<i>Amounts brought forward</i>	\$9,186 00	\$25,500 00
For 75 arc lights . . . .	7,483 27	
For 430 incandescent lamps . .	5,429 25	
For oil and care 145 lamps . .	1,786 75	
For lighting Auburndale subway	24 00	
Mrs. W. J. Towne, light on Crafts street . . . .	11 60	
Total, as per item No. 55 of expenses .		23,920 87

Balance unexpended, transferred into excess and deficiency account . . . .	\$1,579 13
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**Taxes 1890—County.**

Amount assessed for county tax . . . .	\$27,421 81
Amount paid to county treasurer, as per item No. 56 of expenses . . . .	27,421 81

**Taxes 1890—National Bank.**

Amounts paid to Commonwealth of Massa- chusetts for non-residents of Newton, national bank shares, as per item No. 57 of expenses . . . . .	\$1,436 05
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**Taxes 1890—State.**

Amount assessed for State tax . . . .	\$29,802 50
Amount paid to State treasurer, as per item No. 58 of expenses . . . .	29,802 50

**Temporary Loans.**

April 12, paid National Hide & Leather Bank	\$10,000 00
April 12, paid National Bank of Redemption	20,000 00
April 12, paid Blackstone National Bank .	10,000 00
<i>Amount carried forward</i>	\$40,000 00

<i>Amount brought forward</i>	\$40,000 00
April 14, paid North National Bank . . .	10,000 00
April 14, paid National Hide & Leather Bank	10,000 00
May 23, paid National Hide & Leather Bank	15,000 00
May 23, paid Blackstone National Bank . .	10,000 00
June 25, paid Blackstone National Bank . .	10,000 00
June 25, paid National Hide & Leather Bank	15,000 00
Aug. 8, paid Boston National Bank . . .	30,000 00
Aug. 8, paid National Exchange Bank . . .	10,000 00
Aug. 8, paid National Bank of the Republic	60,000 00
Aug. 8, paid National Hide & Leather Bank	10,000 00
Aug. 8, paid New England Trust Co. . . .	45,000 00
Nov. 4, paid New England Trust Co. . . .	120,000 00
Nov. 4, paid Commonwealth of Massachusetts	15,000 00
Nov. 4, paid Newton National Bank . . .	10,000 00
Nov. 4, paid New England Mutual Life Insurance Co. . . . .	50,000 00
Nov. 6, paid New England Trust Co. . . .	60,000 00
Nov. 6, paid National Hide & Leather Bank	15,000 00
Nov. 29, paid trustees of the Read Fund . .	40,000 00

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Total, as per item No. 59 of expenses . . \$575,000 00

#### **Waban School House.**

Henry H. Kendall for plans, as per item No.  
60 of expenses . . . . . \$250 00

#### **Water Construction.**

Total expenditure to December 31, 1889 . \$1,213,435 89  
Pay rolls City Engineer, assistants and laborers . . . \$33,266 42  
Wm. H. Mague, contract on reservoir . . . . . 32,928 49

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*Amounts carried forward* . . . \$66,194 91 \$1,213,435 89

<i>Amounts brought forward</i>	\$66,194 91	\$1,213,435 89
Charles H. Hale, labor men and teams on basin and conduit .	32,001 12	
F. W. Sargeant, land on Waban Hill . . . . .	42,265 00	
Amasa Kingsbury land in Need- ham . . . . .	861 20	
Mrs. Mary A. Damon, land in Needham . . . . .	800 00	
Luther Kingsbury, land in Need- ham . . . . .	726 00	
Sarah B. Thomas, land in Need- ham . . . . .	700 00	
Messrs. Benjamin G. & H. C. Kimball, land in Needham .	560 00	
George Otis Kingsbury, land in Needham . . . . .	380 00	
Marriette Hunt, land in Needham	357 00	
Isaac W. Kingsbury, land in Needham . . . . .	350 00	
Warren Colburn, land in Need- ham . . . . .	350 00	
Walter Bowers 2d, land in Need- ham . . . . .	300 00	
Heirs of Thomas Ryan, land in Needham . . . . .	225 60	
William Morton, land in Needham	215 40	
John F. Bowers, land in Needham	150 00	
Phillip Fanning, land in Needham	126 30	
Charlotta A. K. & Sarah B. Ban- croft, land in Needham .	108 00	
Geo. H. Caldwell, land in Need- ham . . . . .	65 00	
<i>Amounts carried forward</i>	\$146,735 53	\$1,213,435 89

<i>Amounts brought forward</i>	\$146,735 53	\$1,213,435 89
Thomas J. Ryan, land in Need-		
ham . . . . .	63 30	
George Lyman Kingsbury, land		
in Needham . . . . .	35 00	
Heirs of Thomas Orr, land in		
Needham . . . . .	30 00	
Heirs of Otis Morton, land in		
Needham . . . . .	15 00	
John E. Richards, land in Need-		
ham . . . . .	10 00	
George W. Tisdale, appraising		
land, etc. . . . .	330 00	
James McIntosh, appraising land,		
etc. . . . .	100 00	
J. F. C. Hyde, appraising land,		
etc. . . . .	100 00	
J. H. Burdakin, recording papers	7 00	
A. Fteley, services consulting en-		
gineer . . . . .	2,500 00	
Albert F. Noyes, sundry cash ex-		
penses . . . . .	236 66	
J. C. Whitney, sundry cash ex-		
penses . . . . .	34 35	
H. N. Hyde, Jr., sundry cash ex-		
penses . . . . .	17 46	
Warren Foundry and Mch. Co.,		
iron pipe . . . . .	18,185 85	
National Tube Works Co., iron		
pipe . . . . .	4,582 95	
Butler and Taylor, iron pipe .	1,936 37	
Chapman Valve Mfg. Co., water		
gates . . . . .	2,355 68	
<i>Amounts carried forward</i>	\$177,275 15	\$1,213,435 89

<i>Amounts brought forward</i>	\$177,275 15	\$1,213,435 89
The Whittier Mch. Co., water gates . . . . .	225 00	
Davis & Farnum Mfg. Co., cast- ings . . . . .	2,014 27	
Chadwick Lead works, lead pipe, etc. . . . .	1,645 62	
American Well Works, castings .	798 91	
Bacon & Co., iron . . . .	271 75	
Mowry & Phillips, lead . . .	110 94	
Fuller, Dana & Fitz, lead . .	86 91	
City Iron Foundry, gate boxes .	839 71	
The Pfaudler Vacuum Fermenta- tion Co., tank . . . . .	800 00	
Knowles Steam Pump Works, pump . . . . .	646 40	
John H. Leavitt, pump . . . .	485 00	
John Post, Jr., & Co., pump . .	268 73	
Edson Mfg. Co., pump . . . .	51 00	
The Coffin Valve Mfg. Co., valves	715 00	
Edward Kendall & Sons, new engine . . . . .	939 56	
Lidgerwood Mfg. Co., engine and boiler . . . . .	588 00	
J. H. Houghton, new engine . .	539 70	
Hersey Meter Co., meters . . .	3,624 15	
Hersey Mfg. Co., meters . . .	925 20	
Thompson Meter Co., meters . .	120 50	
National Meter Co., meters . .	74 75	
The American Frost Meter Co., meter . . . . .	22 50	
Union Water Meter Co., repair- ing meter . . . . .	12 50	
<i>Amounts carried forward</i>	\$193,081 25	\$1,213,435 89

<i>Amounts brought forward</i>	\$193,081 25	\$1,213,435 89
Water Waste Prevention Co., meter . . . . .	12 05	
Akron Iron Co., shafting . . .	39 09	
Boston & Lockport Block Co., blocks . . . . .	48 00	
Wood, Barker & Co., lumber .	7,335 27	
W. H. Leatherbee & Son, lumber	2,019 38	
C. A. Harrington, lumber . .	998 06	
George McQuesten & Co., lumber	115 42	
Andrew F. Leatherbee, lumber .	69 84	
Gilkie & Stone, lumber . . .	68 83	
Benjamin J. Cutter, lumber .	39 06	
Town of Weston, lumber . . .	16 86	
J. W. Mitchell, cement . . .	634 98	
Waldo Brothers, cement . . .	115 00	
Riehle Bros., cement tester .	209 00	
P. W. Murphy, testing cement .	17 00	
M. W. Sands, brick . . . . .	72 00	
American Powder Mills, powder	59 88	
J. W. Mitchell, coal . . . . .	1,749 74	
C. F. Eddy & Co., coal . . . .	6 00	
M. Frank Lucas, stakes . . . .	95 38	
Sewall & Day Cordage Co., pack- ing . . . . .	148 53	
Revere Rubber Co., packing . .	122 10	
Jenkins Brothers, packing . . .	15 86	
American Steam Packing Co., packing . . . . .	5 10	
Sherbourne & Co., cotton waste .	15 25	
Parker, Holmes & Co., rubber boots . . . . .	153 67	
John H. Parker, rubber boots .	14 91	
<i>Amounts carried forward</i>	<hr/> \$207,277 51	<hr/> \$1,213,435 89



<i>Amounts brought forward</i>	\$207,277 51	\$1,213,435 89
George Kerivan, rent of boat . . . . .	27 00	
H. V. Partelot & Co., new boat . . . . .	24 00	
A. O. Doane, photographs . . . . .	20 40	
George H. Ellis, ice . . . . .	16 80	
Newton & Watertown Gas Light Co., gas . . . . .	12 15	
J. A. Gould, Jr., services . . . . .	10 00	
Leonard & Ellis, oil . . . . .	184 60	
Alden Speare's Sons & Co., oil . . . . .	28 06	
Boston & Albany R. R. Co., freight . . . . .	1,584 92	
N. Y. & N. E. R. R. Co., freight . . . . .	287 95	
Atkinson's Express, expressage . . . . .	78 90	
F. H. Hunting, expressage . . . . .	58 40	
Dyson Brothers' Express, expres- sage . . . . .	28 95	
R. J. McAdoo, expressage . . . . .	4 00	
Adams Express, expressage . . . . .	3 40	
C. H. Jenison, expressage . . . . .	2 70	
Wm. H. Mague, hauling pipe . . . . .	195 30	
John H. Leavitt, hauling engine . . . . .	9 00	
C. S. Packard, moving engine . . . . .	50 00	
N. W. Tupper, grain . . . . .	365 50	
J. P. Bent, hay . . . . .	129 43	
H. W. Crowell, hay . . . . .	21 46	
B. F. Barlow, blacksmithing . . . . .	128 75	
A. Danforth, agt., blacksmithing . . . . .	121 43	
Charles A. Cole, blacksmithing . . . . .	75 75	
J. C. Farrar, blacksmithing . . . . .	66 10	
Thomas Belger, blacksmithing . . . . .	50 61	
Murray & Farrell, blacksmithing . . . . .	34 61	
Andrew Peters, blacksmithing . . . . .	7 38	

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<i>Amounts carried forward</i>	\$210,905 06	\$1,213,435 89
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<i>Amounts brought forward</i>	\$210,905 06	\$1,213,435 89
S. D. Keegan, blacksmithing . . . . .	7 10	
Wm. H. Mague, manure . . . . .	103 60	
Timothy Stuart & Son, labor men and teams . . . . .	579 90	
Timothy Stuart, labor men and teams . . . . .	239 74	
John Joyce, labor men and teams	222 81	
Michael McDonald, labor men and teams . . . . .	56 11	
Herbert S. Ware, labor men and teams . . . . .	9 60	
Thomas F. Mague, labor men and teams . . . . .	3 30	
Stephen F. Cate, use of teams . . . . .	247 50	
A. F. Harrington, use of teams . . . . .	133 00	
C. G. Tinkham, use of teams . . . . .	17 00	
Wm. Welch, use of teams . . . . .	15 75	
C. H. Spring, use of teams . . . . .	5 00	
Henry C. Daniels, use of teams . . . . .	3 00	
W. Rand, use of pung . . . . .	3 75	
Newton Graphic, advertising . . . . .	250 85	
The Engineering News Pub. Co., advertising . . . . .	59 20	
Engineering & Building Record, advertising . . . . .	45 20	
The Boston Herald Co., advertis- ing . . . . .	38 75	
The Globe Newspaper Co., ad- vertising . . . . .	35 63	
Newton Journal, advertising . . . . .	28 50	
Journal Newspaper Co., advertis- ing . . . . .	23 75	
<i>Amounts carried forward</i>	\$213,034 10	\$1,213,435 89

<i>Amounts brought forward</i>	\$213,034 10	\$1,213,435 89
Fire & Water, advertising . . . . .	9 50	
Rockwell & Churchill, printing . . . . .	99 40	
Fanning Printing Co., printing . . . . .	4 50	
Charles H. Stacy, telegrams . . . . .	10 50	
Cobb, Bates & Yerxa, oatmeal . . . . .	10 75	
C. H. & A. F. Ireland, material and labor . . . . .	209 45	
S. A. Piper, material and labor . . . . .	91 78	
Charles Carr, material and labor . . . . .	73 75	
E. R. Cheney, material and labor . . . . .	64 85	
Smith & Winchester, material and labor . . . . .	45 75	
E. W. Hodgson, material and labor . . . . .	40 65	
Adam Beck, material and labor . . . . .	33 50	
M. S. Hodgson, material and labor . . . . .	24 65	
Cutler & Parker, material and labor . . . . .	21 90	
P. Y. Hoseason, material and labor . . . . .	12 00	
H. H. Hunt, material and labor . . . . .	9 63	
C. N. Allen & Co., material and labor . . . . .	7 07	
W. J. Power, material and labor . . . . .	3 50	
Higgins & Nickerson, material and labor . . . . .	3 48	
O. B. Leavitt, material and labor . . . . .	3 43	
Charles Carr, supplies . . . . .	1,951 53	
Taunton Locomotive Works, sup- plies . . . . .	1,239 18	
Pettee Machine Works, supplies . . . . .	913 50	
Walworth Mfg. Co., supplies . . . . .	680 58	
<i>Amounts carried forward</i>	\$218,598 93	\$1,213,435 89

<i>Amounts brought forward</i>	\$218,598 93	\$1,213,435 89
Chandler & Farquhar, supplies .	655 07	
Smith & Anthony Stove Co., sup- plies . . . . .	599 30	
James H. Roberts & Co., supplies	562 02	
Holyoke Hydrant and Iron Wks., supplies . . . . .	455 90	
Boston Bolt Co., supplies . .	284 55	
Sweatt & Chase, supplies . .	342 11	
National Mfg. Co., supplies .	182 00	
George D. Jewett, supplies .	146 50	
Bradlee, Hastings & Co., supplies	151 65	
W. H. Ward & Co., supplies .	128 91	
Boston Woven Hose Co., supplies	102 10	
James Hennessey, supplies . .	88 50	
Morss & Whyte, supplies . .	70 28	
Kent & Gore, supplies . .	60 72	
C. A. Trumbull, supplies . .	60 00	
J. E. Trowbridge, supplies . .	59 60	
Dodge, Haley & Co., supplies .	56 38	
South Boston Iron Works, sup- plies . . . . .	46 49	
P. F. Burke, supplies . .	35 12	
The Philadelphia Heliographic Co., supplies . . . . .	33 75	
Ingersol Sergeant Rock Drill Co., supplies . . . . .	29 72	
C. B. Rogers & Co., supplies .	26 61	
Frost & Adams, supplies . .	24 78	
The American Hose Mfg. Co., supplies . . . . .	24 50	
O. Sheldon & Co., supplies .	18 95	
M. C. Warren, supplies . .	17 93	
<i>Amounts carried forward,</i>	\$222,862 37	\$1,213,435 89

<i>Amounts brought forward</i>	\$222,862 37	\$1,213,435 89
A. R. Pitts, supplies . . .	17 41	
Newton Machine Co., supplies .	16 21	
Samuel Kidder, supplies . .	16 10	
Gilchrist & Gorham, supplies .	15 00	
Benjamin F. Butler, Jr., supplies,	14 50	
Gould & Cutler, supplies . .	13 66	
Wm. Felsted, supplies . . .	12 30	
A. A. Savage, supplies . . .	10 60	
Henry W. Wellington, supplies .	10 01	
Chapman & Soden, supplies .	10 00	
Parker & Wood, supplies . .	9 82	
J. E. Cahill, supplies . . .	9 00	
A. J. Wilkinson, supplies . .	8 42	
Page & Coffin, supplies . . .	7 90	
Dean, Foster & Co., supplies .	6 65	
Fairbanks, Brown & Co., supplies	6 58	
O. P. Berry, supplies . . . .	6 55	
Star Brass Mfg. Co., supplies .	5 85	
The American Tool & Machine Co., supplies . . . . .	5 15	
C. W. Morehouse, supplies . .	4 97	
J. A. and W. Bird & Co., supplies	4 75	
The American Tube Works, sup- plies . . . . .	4 37	
The Boston Gear Works, supplies	4 00	
C. W. H. Moulton & Co., supplies	3 84	
Albert Temperley, supplies . .	3 67	
A. G. Allen, supplies . . . .	3 00	
Aaron R. Gay & Co., supplies .	2 91	
H. M. Darling & Co., supplies .	2 78	
Oscar F. Howe, supplies . . .	2 50	
B. Billings, supplies . . . .	2 30	

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*Amounts carried forward*                      \$223,103 17    \$1,213,435 89

<i>Amounts brought forward</i>	\$223,103 17	\$1,213,435 89
Carter & Haskell, supplies . . .	2 00	
Sundry small bills . . .	15 47	

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Total, as per item No. 61 of  
expenses . . . \$223,120 64

## RECEIVED.

From N. W. Harris &  
Co., 110 63-100  
per cent. on  
\$33,000 City of  
Newton water  
bonds. . . \$3,507 90

From W. J. Hayes &  
Co., 110 92-10  
per cent. on  
\$50,000 City of  
Newton water  
bonds. . . 5,460 00

From N. W. Harris &  
Co., 109 65-100  
per cent. on  
\$100,000 City of  
Newton water  
bonds. . . 9,650 00

City of Somerville, for  
pipe . . . 322 16

City of Waltham, for  
pipe . . . 274 25

Town of Needham, for  
pipe, etc. . . 313 87

E. H. Gowing, for pipe 193 85

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*Am'ts carried for'rd* \$19,722 03 \$223,120 64 \$1,213,435 89

<i>Am'ts brought forward</i>	\$19,722 03	\$223,120 64	\$1,213,435 89
Davis & Farnum Mfg. Co., for pipe	126 76		
Thompson Meter Co., refund of bill	5 80		
F. W. Sargent, refund on account of 45 feet land	4 50		
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Total, as per item No. 52 of receipts	19,859 09		
	<hr/>		
			203,261 55
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Total expenditure to Dec. 31, 1890	.	.	\$1,416,697 44

**Water Maintenance.**

Appropriation	.	.	.	.	.	\$14,800 00
J. C. Whitney, Water Registrar	\$2,065 39					
Albert S. Glover, Water Registrar	34 61					
J. C. Whitney, inspector	26 92					
H. N. Hyde, Jr., superintendent	1,700 00					
Thomas Coughlan, engineer at pumping station	1,204 64					
Miss E. D. Hinckley, clerical ser- vices	728 00					
J. C. Whitney, sundry cash ex- penses	50 17					
H. N. Hyde, Jr., sundry cash ex- penses	25 70					
Pay rolls of laborers	3,230 97					
J. W. Mitchell, coal	3,487 75					
Daniel Warren, coal	640 47					
Albert Brackett & Son, coal	27 78					
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<i>Amounts carried forward</i>	\$13,222 40					\$14,800 00

<i>Amounts brought forward</i>	\$13,222 40	\$14,800 00
C. F. Eddy & Co., coal . . .	9 43	
Daniel Sullivan, wood . . .	73 20	
N. W. Tupper, grain, etc. . .	89 44	
Cornelius Cooper, exchange of horse . . . . .	165 00	
Hartford Steam Boiler Inspection & Insurance Co., policy of insurance . . . . .	150 00	
T. Albert Ward, care of reservoir	75 00	
Leonard & Ellis, oil . . . .	92 94	
F. W. Gregory, oil . . . . .	45 78	
Charles H. Hale, labor men and teams . . . . .	219 67	
Timothy Stuart & Son, labor men and teams . . . . .	86 62	
Stephen F. Cate, use of teams .	15 00	
A. F. Harrington, use of teams .	5 50	
Central Stables, use of teams .	3 00	
H. A. Spear, use of teams . . .	1 50	
H. C. Daniels, clipping horse .	3 00	
F. H. Hunting, expressage . . .	2 25	
Crowley's Express, expressage .	2 05	
Newton Journal, printing . . .	28 00	
The Newton Graphic, printing .	6 00	
Dr. Edward S. Wood, analysis of water . . . . .	10 00	
A. O. Doane, photographs . . .	15 10	
Newton & Watertown Gas Light Co., gas . . . . .	7 60	
Mrs. Elizabeth Welch, laundry work . . . . .	5 20	
C. E. Hastings, repairing clock .	2 50	
<i>Amounts carried forward</i>	\$14,336 18	\$14,800 00



<i>Amounts brought forward</i>	\$14,336 18	\$14,800 00
Charles H. Stacy, telegrams . . . . .	2 10	
John P. Keating, delivering water . . . . .	2 00	
Patrick Lally, iron wheelbarrows . . . . .	30 00	
Holyoke Hydrant & Iron Works, hydrant . . . . .	8 80	
J. F. Buckley & Co., exchange of boilers . . . . .	15 00	
B. F. Barlow, blacksmithing . . . . .	18 03	
Thomas Belger, blacksmithing . . . . .	12 48	
A. Danforth, agt., blacksmithing . . . . .	9 92	
J. C. Farrar, blacksmithing . . . . .	7 58	
Murray & Farrell, blacksmithing . . . . .	2 00	
J. E. Cahill, manure . . . . .	62 43	
John B. Turner, stamps . . . . .	3 00	
P. Y. Hoseason, material and labor . . . . .	28 00	
J. F. Horrigan, material and labor . . . . .	18 08	
E. W. Hodgson, material and labor . . . . .	14 91	
Pettee Machine Works, material and labor . . . . .	11 82	
A. H. Adams, material and labor . . . . .	5 25	
Alex. Griswold, material and labor . . . . .	2 50	
L. H. Cranitch, material and labor . . . . .	2 15	
Page & Coffin, supplies . . . . .	28 40	
Hooper, Lewis & Co., supplies . . . . .	26 10	
American Fire Hose Mfg. Co., supplies . . . . .	25 00	
M. D. Jones & Co., supplies . . . . .	13 85	
H. W. Wellington, supplies . . . . .	12 85	
W. A. Wood & Co., supplies . . . . .	9 98	
Charles Carr, supplies . . . . .	9 90	
<i>Amounts carried forward</i>	<hr/> \$14,718 31	<hr/> \$14,800 00

<i>Amounts brought forward</i>	\$14,718 31	\$14,800 00
W. H. Ward & Co., supplies . . .	9 00	
Morss & Whyte, supplies . . .	7 50	
John F. Payne, supplies . . .	7 50	
Parker & Wood, supplies . . .	6 94	
A. A. Savage, supplies . . .	6 19	
Walworth Mfg. Co., supplies . . .	5 56	
J. A. & W. Bird & Co., supplies . . .	5 00	
O. B. Leavitt, supplies . . .	4 59	
B. Billings, supplies . . .	4 12	
S. P. Jones, supplies . . .	3 00	
Sherburne & Co., supplies . . .	3 00	
Dodge, Haley & Co., supplies . . .	2 13	
Sundry small bills . . .	11 52	

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Total, as per item No. 62 of expenses . . .	14,794 36
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Balance unexpended, transferred into excess and deficiency account . . . . .	\$5 64
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#### Water Meters and Service Pipe.

Appropriation . . . . .		\$3,500 00
Pay rolls of laborers . . . . .	\$1,806 44	
Chadwick Lead Works, lead pipe, etc. . . . .	661 96	
National Tube Works Co., iron pipe . . . . .	228 59	
Union Water Meter Co., repairing meters . . . . .	192 65	
National Meter Co., meters, etc. . . . .	47 50	
Chapman Valve Mfg. Co., water gate . . . . .	3 28	
American Powder Mills, powder . . . . .	3 95	
<i>Amounts carried forward</i>	\$2,944 37	\$3,500 00

<i>Amounts brought forward</i>	\$2,944 37	\$3,500 00
N. W. Tupper, grain . . . .	91 36	
N. W. Tupper, hay . . . .	40 70	
J. P. Bent, hay . . . .	29 08	
H. N. Hyde, sundry cash expenses	8 00	
J. C. Whitney, sundry cash ex- penses . . . .	6 16	
M. C. Laffie, serving summons .	6 00	
Robert Harrison, serving sum- mons . . . .	4 00	
Rodney M. Lucas, serving sum- mons . . . .	4 00	
F. H. Humphrey, agt., material and labor . . . .	20 98	
Boston & Albany R. R. Co., freight . . . .	5 66	
B. F. Barlow, blacksmithing .	19 93	
J. C. Farrar, blacksmithing .	11 81	
A. Danforth, agt., blacksmithing	8 80	
Murray & Farrell, blacksmithing	4 50	
Charles A. Cole, blacksmithing .	2 50	
Gilchrist & Taylor, supplies .	72 00	
Sweatt & Chase, supplies .	68 41	
Gilchrist & Gorham, supplies .	65 75	
George Woodman & Co., supplies	45 85	
Walworth Mfg. Co., supplies .	27 83	
Parker & Wood, supplies .	5 25	
Jenkins Brothers, supplies .	2 08	
Sundry small bills .	3 40	
<hr/>		
Total, as per item No. 63 of expenses .		3,498 42
		<hr/>
Balance unexpended, transferred into excess and deficiency account . . . .		\$ 1 58

**Water Rebate.**

Appropriation . . . . .	\$500 00
Paid to sundry persons rebate of water bills as per item No. 64 of expenses . . . .	425 62
	<hr/>
Balance unexpended, transferred into excess and deficiency account . . . . .	\$74 38

**Watering Streets and Water for the same.**

Appropriation . . . . .	\$7,500 00
Water Department, use of water .	\$1,748 79
Wm. H. Mague, watering Wards 2, 3, and 4 . . . . .	1,816 66
Timothy Stuart, watering Wards 1 and 7 . . . . .	950 00
Thomas R. Frost, watering Ward 6	940 00
John Joyce, watering Ward 1 .	325 00
James M. Keating, watering Ward 5 . . . . .	325 00
	<hr/>
Total, as per item No. 65 of expenses .	6,105 45
	<hr/>
Balance unexpended, transferred into excess and deficiency account . . . . .	\$1,394 55

**Watering Troughs and Drinking Posts.**

Appropriation . . . . .	\$1,550 00
Water Department, use of water, watering troughs . . . .	\$1,104 07
Water Department, use of water, drinking posts . . . . .	70 00
Water Department, use of water fountain, Ward 2 . . . .	35 43
	<hr/>
<i>Amounts carried forward</i>	\$1,209 50
	<hr/>
	\$1,550 00

## EXPENSES IN DETAIL.

175

<i>Amounts brought forward</i>	\$1,209 50	\$1,550 00
Water Department, material and labor, fountain, Newton Highlands . . . . .	12 53	
	<hr/>	
Total, as per item No. 66 of expenses .		1,222 03
		<hr/>
Balance unexpended, transferred into excess and deficiency account . . . . .		\$327 97

**Water — Use of Hydrants.**

Appropriation . . . . .	\$12,240 00
Amount paid Water Department, as per item No. 67 of expenses . . . . .	12,240 00

Table showing Appropriations, Transfers, Mayor's Warrants, Treasurer's Payments, Differences, Excess and Deficiency Accounts.

OBJECT OF APPROPRIATION.	Appropriations for 1890.	Transfers.	Total Appropriations.	Mayor's Warrants.	Treasurer's Payments.	Differences.	EXCESS AND DEFICIENCY ACCOUNT.	
							Overdrawn.	Unexpended.
Almshouse expenses and repairs . . . . .	\$4,500 00	-	\$4,500 00	\$3,544 98	\$3,712 30	\$167 32	-	\$855 02
Armory expenses . . . . .	1,000 00	-	1,000 00	708 35	716 15	7 80	-	291 65
Assessors' Department . . . . .	7,800 00	-	7,800 00	7,808 19	7,857 19	-11 00	68 19	-
Additional by order of City Council . . . . .	4,000 00	-	4,000 00	3,417 29	3,036 72	-380 57	-	582 71
Books, stationery, and printing . . . . .	7,000 00	-	7,000 00	6,692 55	6,424 74	-267 81	-	307 45
Board of Health . . . . .	400 00	-	400 00	337 13	-	-337 13	-	62 87
Additional by order of City Council . . . . .	8,900 00	-	8,900 00	8,892 10	8,865 51	-26 50	-	7 90
City Engineer's Department . . . . .	2,300 00	-	2,300 00	2,295 58	2,054 66	-240 92	-	4 42
Additional by order of City Council . . . . .	3,780 00	-	3,780 00	4,039 63	4,093 65	54 02	250 63	-
Elections and registration of voters . . . . .	31,205 00	-	31,205 00	31,811 50	31,987 28	175 78	606 50	-
Additional by order of City Council . . . . .	4,000 00	900 00	31,000 00	2,964 04	3,055 66	91 62	-	135 96
Highways, curbing . . . . .	6,000 00	600 00	6,600 00	6,301 68	6,135 54	-166 14	-	298 32
Highways, drains and culverts . . . . .	68,461 03	500 00	68,961 03	68,135 40	68,277 47	142 07	-	825 63
Highways, general repairs . . . . .	2,000 00	1,400 00	600 00	589 35	212 75	-376 60	-	10 65
Additional by order of City Council . . . . .	5,018 50	200 00	4,818 50	4,618 50	4,518 50	-100 00	-	200 00
Highways, gravel land . . . . .	15,000 00	1,400 00	16,400 00	15,846 99	16,093 39	246 40	-	553 01
Highways, land damages . . . . .	25,700 00	-	25,700 00	25,566 21	25,027 27	-538 94	-	133 79
Received from Boston & Albany R. R. on account of Union Street . . . . .	1,500 00	200 00	1,300 00	980 00	984 00	4 00	-	320 00
Highways, sidewalks and street crossings . . . . .	13,101 50	-	13,101 50	12,085 37	12,085 37	-	-	1,016 13
Highways, widening, reconstruction and improvements . . . . .	9,000 00	1,173 99	7,826 01	7,509 22	7,509 22	-	-	316 79
Additional by order of City Council . . . . .	65,666 01	1,173 99	66,840 00	66,840 00	66,840 00	-	-	-
Indigent soldiers and sailors . . . . .	500 00	-	500 00	500 00	500 00	-	-	-
Interest on city loans, permanent . . . . .	6,000 00	-	6,000 00	6,992 30	7,432 46	440 16	992 30	-
Interest on city loans, temporary . . . . .	10,495 00	-	10,495 00	10,495 00	10,752 37	257 37	-	-
Interest on water bonds . . . . .	-	-	-	-	-	-	-	-
Additional by order of City Council . . . . .	-	-	-	-	-	-	-	-
Memorial day . . . . .	-	-	-	-	-	-	-	-
Miscellaneous expenses . . . . .	-	-	-	-	-	-	-	-
Newton Free Library . . . . .	-	-	-	-	-	-	-	-

### EXPENSES IN DETAIL.

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Newton Free Library, note	-	4,600 00	4,600 00	4,600 00	-	-
Newton Cottage Hospital	-	1,500 00	1,500 00	1,500 00	-	-
Parks and squares	-	2,000 00	2,000 00	1,780 48	-216 17	219 52
Police Department	\$31,435 00	42,510 00	42,510 00	41,175 74	504 49	1,834 26
Additional by order of City Council	11,075 00	-	-	-	-	-
Poor out of almshouse	-	9,200 00	9,200 00	9,277 42	46 22	77 42
Public property	-	12,000 00	12,000 00	11,721 90	15,536 68	278 10
Removal of ashes	-	5,000 00	5,000 00	4,432 07	3,814 78	567 93
Salaries	-	14,575 00	14,575 00	14,500 00	-	75 00
Schools, general	-	1,000 00	1,000 00	780 52	-17 09	219 48
Schools, evening	-	-	-	-	-	-
Schools, general appropriation	\$108,500 00	111,411 94	108,985 94	108,977 57	108,977 57	9 37
Dog tax, 1890, by order of City Council	2,911 94	-	2,425 00	-	-	9 90
School incidentals	-	9,500 00	11,925 00	11,915 10	10,452 60	6 14
Sewerage	-	2,000 00	2,000 00	1,993 86	1,967 48	-
School note (addition to High school building)	-	4,500 00	4,500 00	4,500 00	-	-
School house note (Williams and Eliot)	-	3,130 00	5,150 00	5,150 00	-	-
Sinking fund, city debt	-	22,000 00	22,000 00	22,000 00	-	-
Sinking fund, school loan	-	4,000 00	4,000 00	4,000 00	-	-
Sinking fund, water bonds	-	22,000 00	22,000 00	22,000 00	-	-
Soldiers' relief	-	-	200 00	-	-	56 00
State aid	-	1,000 00	-	1,000 00	98 00	-
Street light Department	\$24,000 00	25,560 00	25,500 00	23,920 87	24,001 53	1,579 13
Additional by order of City Council	1,500 00	-	-	-	-	-
Use of hydrants	-	12,240 00	12,240 00	12,240 00	-	-
Water maintenance	-	14,800 00	14,800 00	14,794 36	-172 37	5 64
Water meters and service pipe	-	3,500 00	3,500 00	3,468 48	11 26	1 58
Water, rebate on bills	-	500 00	500 00	425 62	395 10	74 38
Watering streets and water for same	-	7,500 00	7,500 00	6,105 45	-90 52	-
Watering streets and drinking posts	-	1,500 00	1,500 00	1,222 03	1,209 50	1,894 55
Watering troughs and drinking posts	-	-	-	-	-12 53	327 97
<b>SPECIAL APPROPRIATIONS.</b>						
Balance of appropriations of 1889, on account of new Clatin school house	\$28,833 48	32,092 75	32,092 75	32,092 75	-500 00	-
Additional by order of City Council	3,259 27	-	-	-	-611 68	-
Drains and culverts	-	25,000 00	25,000 00	22,557 10	21,945 42	2,442 90
Engine house, Newton Highlands	-	16,500 00	16,500 00	10,450 00	10,450 00	6,050 00
Newton Cottage Hospital	-	10,000 00	10,000 00	10,000 00	10,000 00	-
Land for almshouse	-	7,600 00	7,600 00	7,600 00	7,600 00	-
Fire alarm striker, Nonantum	-	675 00	675 00	525 92	525 92	149 08
Bath house	-	60 00	600 00	503 25	503 25	96 75
Appropriations of 1889 paid by Treasurer in 1890, as follows:	-	-	-	-	-	-
Newton Centre play ground	-	-	-	-	10,000 00	-
Bemis bridge	-	-	-	-	1,000 00	-
<b>Amounts carried forward,</b>						
	\$735,331 73	\$735,331 73	\$716,493 29	\$727,709 30	\$17,147 45	\$20,919 98
	-	-	-	-	5,881 54	2,081 54

Table showing Appropriations, Transfers, etc. — Concluded.

OBJECT OF APPROPRIATION.	Appropriations for 1890.	Transfers.	Total Appropriations.	Mayor's Warrants.	Treasurer's Payments.	Differences.	EXCESS AND DEFICIENCY ACCOUNT.	
							Overdrawn.	Unexpended.
<i>Amounts carried forward,</i> . . . . .	\$735,331 73	-	\$735,331 73	\$716,493 29	\$727,799 30	\$17,147 45 5,841 44	\$2,081 54	\$20,919 28 2,081 54
Less Mayor's warrants of 1889 paid by Treasurer in 1890 .	-	-	-	-	33,524 19	-	-	-
Amount of Mayor's warrants for 1890 paid by Treasurer in 1891 appropriations . . . . .	-	-	-	-	\$694,275 11 22,218 28	-	-	-
Transferred into treasury . . . . .	\$735,331 73	-	\$735,331 73	\$716,493 29	\$716,493 29	\$11,306 01	-	\$18,838 44



## SCHEDULE OF CITY PROPERTY, REAL AND PERSONAL.

### Alms-house Department.

Seventy acres of land . . . . .	\$40,000 00	
Buildings . . . . .	5,000 00	
Personal property . . . . .	3,947 35	
Twenty-four acres of land on Winchester street . . . . .	8,600 00	
		\$57,547 35

### Armory Hall.

Land, building, fixtures, etc. . . . .	12,000 00
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### City Hall Department.

City Hall furniture and fixtures .	\$50,000 00	
City seal . . . . .	25 00	
City stamps . . . . .	35 00	
Reports, statistics, and special laws . . . . .	300 00	
Set of standard weights and measures . . . . .	100 00	
Record books . . . . .	200 00	
Book-cases, maps, etc. . . . .	500 00	
		51,160 00

### Cemetery Department.

Land in Newton Cemetery . . . . .	\$5,500 00	
Tomb in Newton Cemetery . . . . .	800 00	
		6,300 00

### City Engineering Department.

Two transits, \$150 each . . . . .	\$300 00	
Three transits, \$250 each . . . . .	750 00	
Two levels, \$100 each . . . . .	200 00	

<i>Amounts carried forward</i>	\$1,250 00	\$127,007 35
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<i>Amounts brought forward</i>	\$1,250 00	\$127,007 35
Draughting materials . . .	126 00	
Surveying materials . . .	48 00	
Tools . . . . .	50 00	
Horses, wagons, etc. . . .	600 00	
Cases and furniture . . .	300 00	
	<hr/>	2,374 40

**Fire Department.**

Steam fire engine No. 1, apparatus, horses, and furniture . . .	\$6,000 00	
Steam fire engine No. 2, apparatus, horses, and furniture . . .	6,000 00	
Steam fire engine No. 3, apparatus, horses, and furniture . . .	6,000 00	
Chemical engine No. 1 . . .	2,250 00	
Hook and ladder truck, horses, etc. . . . .	3,300 00	
Hose No. 4, horse, hose, reel, etc., Newtonville . . . . .	1,200 00	
Hose No. 5, horse, hose, reel, etc., Auburndale . . . . .	1,200 00	
Hose No. 6, horse, hose, reel, etc., Lower Falls . . . . .	1,500 00	
Hose No. 7, hose-carriage, horse, hose, etc., Upper Falls . . .	1,500 00	
Fire alarm telegraph, including team, etc. . . . .	26,800 00	
	<hr/>	55,750 00

**Fire and Highway Department Buildings.**

Steam fire engine house, stables and land, Ward 7 . . . .	\$13,000 00	
<i>Amounts carried forward</i>	\$13,000 00	\$185,131 35

<i>Amounts brought forward</i>	\$13,000 00	\$185,131 35
Steam fire-engine house, stables and land, Ward 3 . . .	19,000 00	
Steam fire-engine house, stables and land, Ward 6 . . .	19,000 00	
Hook and ladder and hose No. 4, house, stables, and land . .	17,500 00	
Hose station No. 5, stables and land, Auburndale . . .	5,200 00	
Hose station No. 6, stables and land, Lower Falls . . .	6,900 00	
Hose station No. 7, stables and land, Upper Falls . . .	7,000 00	
Engine house, stables and land, Newton Highlands . . .	10,000 00	
	<hr/>	97,600 00

**Free Library Department.**

Newton Free Library, building and land . . . . .	\$68,000 00	
Books . . . . .	10,000 00	
	<hr/>	78,000 00

**Gravel and Gravel Land.**

Land on Jewett street, Ward 1 . .	\$1,500 00	
Land on California street, Ward 1 . .	6,600 00	
Land on Crafts street, Ward 2 . .	500 00	
Land on Watertown street, Ward 2 . . . . .	1,000 00	
Land on Auburndale avenue, Ward 3 . . . . .	1,200 00	
Land on Pine street, Ward 3 . .	2,550 00	
Land on Pine street, Ward 3 . .	2,000 00	
Land on Pine street, Ward 3 . .	2,000 00	
	<hr/>	
<i>Amounts carried forward</i>	\$17,350 00	\$360,731 35

<i>Amounts brought forward</i>	\$17,350 00	\$360,731 35
Land on Pine street, Ward 3 . . .	1,200 00	
Land on Pine street, Ward 3 . . .	250 00	
Land on Pine street, Ward 3 . . .	550 00	
Land on Pine street, Ward 3 . . .	200 00	
Land on Bourne street, Ward 4 . . .	9,000 00	
Gravel on Washington street, Ward 4 . . . . .	600 00	
Gravel on Washington street, Ward 4 . . . . .	600 00	
Gravel on Walnut street . . . . .	200 00	
Land on Elliot street, Ward 5 . . .	1,000 00	
Gravel on Parker street, Ward 5 . . .	100 00	
Gravel on Pine street . . . . .	200 00	
Land east of Oak street, Ward 5 . . .	1,200 00	
Land on Willow and Centre streets, Ward 6 . . . . .	500 00	
Land on Florence street, Ward 5 . . .	2,100 00	
Land on Florence street, Ward 5 . . .	2,000 00	
Land on Homer street, Ward 6 . . .	4,000 00	
Land on Murray street, Ward 2 . . .	4,000 00	
	<hr/>	45,050 00

**Highway Department.**

1 steam road roller . . . . .	\$6,000 00
29 cart horses, \$200 . . . . .	5,400 00
3 horses, \$100 . . . . .	300 00
2 horses for superintendent of streets . . . . .	375 00
26 double and single carts . . . . .	2,600 00
43 harnesses . . . . .	850 00
4 double sleds, \$200 . . . . .	800 00
3 single sleds . . . . .	100 00

<i>Amounts carried forward</i>	\$16,425 00	\$405,781 35
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<i>Amounts brought forward</i>	\$16,425 00	\$405,781 35
2 stone crushers and houses . . . . .	4,600 00	
2 stone wagons, wagon, carriage, and sleigh . . . . .	525 00	
Tools, chains, derricks, blankets, etc. . . . .	1,800 00	
1 road scraper . . . . .	150 00	
Boiler for steam drill . . . . .	500 00	
	<hr/>	24,000 00

**Lighting Department.**

For 1,369 posts, lanterns, burners, etc., \$10 apiece . . . . .		13,690 00
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**Police Department.**

Station house, building, and land, North Village . . . . .	\$4,000 00	
Furniture and bedding . . . . .	50 00	
Lock-up, furniture, and bedding, Ward 1 . . . . .	1,050 00	
Lock-up, furniture, and bedding, Ward 6 . . . . .	1,575 00	
Carriage and sleigh . . . . .	150 00	
Horse, saddle, bridle, and harness	250 00	
32 pairs hand-cuffs, \$3.75 . . . . .	120 00	
32 clubs, \$1.50 . . . . .	48 00	
32 revolvers . . . . .	304 00	
32 badges . . . . .	180 00	
32 belts . . . . .	80 00	
32 billies . . . . .	32 00	
Buttons . . . . .	50 00	
Blankets . . . . .	50 00	
Record books . . . . .	50 00	

<i>Amounts carried forward</i>	\$7,989 00	\$443,471 35
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<i>Amounts brought forward</i>	\$7,989 00	\$443.471 35
Furniture in station at City Hall	75 00	
Land for stable . . . . .	2,000 00	
Patrol signal system, including two horses, harness, etc., pa- trol wagon and pung . . . . .	7,000 00	
	<hr/>	17,064 00

**School Department.**

High School buildings, furniture and land . . . . .	\$113,000 00	
Mason school house, furniture and land . . . . .	49,100 00	
Hyde school house, furniture and land . . . . .	24,500 00	
Prospect grammar school house, furniture and land . . . . .	31,000 00	
Prospect primary school house, furniture and land . . . . .	7,500 00	
Oak Hill school house, furniture and land . . . . .	12,000 00	
Hamilton school house, furniture and land . . . . .	28,000 00	
Williams school house, furniture and land . . . . .	10,000 00	
Williams new school house and land . . . . .	35,000 00	
Peirce school house, furniture and land . . . . .	32,000 00	
Davis school house, furniture and land . . . . .	13,000 00	
Franklin school house, furniture and land . . . . .	15,000 00	
	<hr/>	
<i>Amounts carried forward</i>	\$370,100 00	\$460,535 35

<i>Amounts brought forward</i>	\$370,100 00	\$ 460,535 35
Clafin school house, furniture and land . . . . .	35,000 00	
Clafin new school house . . . . .	31,500 00	
Adams school house, furniture and land . . . . .	22,500 00	
Bigelow school house, furniture and land . . . . .	44,000 00	
Underwood school house, furni- ture and land . . . . .	24,000 00	
Lincoln school house, furniture and land . . . . .	5,500 00	
Jackson school house, furniture and land . . . . .	15,000 00	
Eliot school house, furniture and land . . . . .	19,000 00	
Rice school house and land . . . . .	20,000 00	
Barnard school house, furniture and land . . . . .	21,000 00	
Thompsonville school house, fur- niture and land . . . . .	5,000 00	
	<hr/>	612,600 00

**Water Department.**

Building for pipe-fitting, etc., stable and land	4,000 00
5 horses, wagons, harness, etc. . . . .	800 00
	<hr/>
	\$1,077,935 35

For cost of water works, see water construction account.

TABLE showing the Number of Polls, Real and Personal Estate of the City, Amount of Tax, Rate per Cent., Appropriations, etc., for Thirty Years.

A. D.	Polls.	Real Estate.	Personal.	Total.	City, State, and County Tax.	Rate.	Appropriations.	Houses.
1861 . . . . .	2,056	\$5,644,285 00	\$1,955,835 00	\$7,600,120 00	\$57,804 88	\$7 20	\$47,500 00	1,330
1862 . . . . .	1,989	5,476,805 00	2,405,821 00	7,922,626 00	56,599 17	6 60	35,000 00	1,374
1863 . . . . .	1,911	5,504,367 00	2,088,105 00	8,492,562 00	64,968 65	7 20	40,000 00	1,399
1864 . . . . .	2,046	5,637,755 00	2,300,021 00	8,492,562 00	78,000 55	9 50	52,500 00	1,421
1865 . . . . .	2,118	5,756,185 00	3,330,075 00	9,146,260 00	115,991 12	12 00	60,000 00	1,438
1866 . . . . .	2,297	6,394,835 00	4,560,724 00	10,955,559 00	114,149 59	10 00	75,000 00	1,491
1867 . . . . .	2,438	7,227,285 00	4,995,127 00	12,222,412 00	153,990 88	12 20	95,000 0	1,552
1868 . . . . .	2,736	9,104,567 00	5,366,602 00	14,441,169 00	195,208 88	13 00	160,000 00	1,671
1869 . . . . .	2,937	10,288,610 00	5,434,296 00	15,922,876 00	188,990 46	11 50	150,000 00	1,826
1870 . . . . .	3,055	11,407,070 00	6,330,922 00	17,737,992 00	222,514 71	12 20	185,000 00	2,077
1871 . . . . .	3,199	12,770,420 00	6,615,563 00	19,386,013 00	225,521 92	11 20	185,000 00	2,220
1872 . . . . .	3,420	15,792,950 50	8,403,904 00	24,256,854 00	334,314 87	13 50	291,050 00	2,392
1873 . . . . .	3,659	18,446,275 00	7,537,775 00	25,984,050 00	384,989 84	14 50	333,200 00	2,592
1874 . . . . .	3,917	20,032,800 00	8,048,645 00	28,081,445 00	372,893 53	13 00	320,000 00	2,637
1875 . . . . .	4,099	21,073,495 00	7,982,347 00	28,955,869 00	391,985 46	13 50	351,000 00	2,876
1876 . . . . .	4,234	21,128,120 00	7,072,845 00	28,200,965 00	392,261 13	13 60	350,004 99	3,004
1877 . . . . .	3,882	18,004,105 00	6,627,488 00	25,634,513 00	370,319 38	13 00	402,200 00	3,037
1878 . . . . .	4,010	17,436,655 00	6,408,825 00	23,012,920 00	352,942 43	13 80	378,400 00	3,150
1879 . . . . .	4,132	17,436,655 00	6,830,897 00	23,787,352 00	329,959 14	13 40	397,850 00	3,178
1881 . . . . .	4,336	17,718,270 00	7,481,830 00	25,200,100 00	361,137 00	14 00	388,525 00	3,214
1882 . . . . .	4,502	18,258,510 00	8,169,793 00	26,468,273 00	379,434 18	14 00	416,545 00	3,237
1883 . . . . .	4,661	19,794,805 00	7,405,233 00	28,335,718 00	383,633 00	14 20	423,930 00	3,310
1884 . . . . .	4,804	20,407,295 00	7,347,296 00	27,124,088 00	427,933 59	15 40	488,120 00	3,381
1885 . . . . .	4,984	21,134,820 00	7,865,000 00	28,999,820 00	410,137 68	14 40	478,306 88	3,468
1886 . . . . .	5,200	21,977,061 00	9,039,869 00	31,016,930 00	415,965 48	14 00	475,400 00	3,542
1887 . . . . .	5,671	23,080,866 00	9,196,441 00	32,277,307 00	451,651 28	15 80	524,420 00	3,695
1888 . . . . .	5,870	24,132,639 00	9,146,012 00	33,278,642 00	511,613 38	15 80	562,070 00	3,866
1889 . . . . .	6,185	25,390,500 00	9,264,372 00	34,654,672 00	590,490 19	15 20	571,739 00	4,018
1890 . . . . .	6,365	26,040,500 00	9,518,625 00	36,159,025 00	550,490 19	14 80	624,124 00	4,200
					575,954 57	14 60	646,033 81	4,379



TABLE

Showing Amount Paid for Support of Poor out of Alms-house from 1851 to 1890 inclusive.

1851 . . .	\$38 56	1871 . . .	\$3,713 39
1852 . . .	101 94	1872 . . .	2,884 79
1853 . . .	45 70	1873 . . .	3,066 59
1854 . . .	38 10	1874 . . .	3,895 51
1855 . . .	73 63	1875 . . .	5,553 79
1856 . . .	135 49	1876 . . .	9,336 14
1857 . . .	204 96	1877 . . .	10,259 57
1858 . . .	387 61	1878 . . .	8,284 10
1859 . . .	358 25	1879 . . .	8,246 42
1860 . . .	500 81	1880 . . .	6,455 80
1861 . . .	757 14	1881 . . .	6,808 75
1862 . . .	781 50	1882 . . .	7,933 57
1863 . . .	632 27	1883 . . .	8,016 14
1864 . . .	605 02	1884 . . .	7,076 86
1865 . . .	870 77	1885 . . .	8,500 15
1866 . . .	643 72	1886 . . .	7,661 96
1867 . . .	1,268 08	1887 . . .	8,269 41
1868 . . .	1,464 53	1888 . . .	9,155 74
1869 . . .	2,019 28	1889 . . .	8,371 73
1870 . . .	2,197 41	1890 . . .	9,277 42

### SALARIES OF CITY OFFICERS, 1890.

Mayor . . . . .	\$1,000 00
City Clerk . . . . .	2,000 00
Assistant City Clerk . . . . .	1,000 00
City Treasurer and Collector . . . . .	3,000 00
Assistant Treasurer and Deputy Collector . . . . .	1,800 00
City Auditor . . . . .	2,200 00
Assistant to City Auditor . . . . .	700 00

City Solicitor . . . . .	\$1,250 00
One Assessor, who is also Clerk of the Board	1,200 00
Two Assessors, each . . . . .	900 00
Assistant Assessors, each per day . . . .	4 00
City Messenger . . . . .	1,200 00
Clerk of Common Council . . . . .	200 00
Sealer of weights and measures . . . . .	75 00
Milk inspector . . . . .	50 00

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**HIGHWAY DEPARTMENT.**

Superintendent of streets, two horses and carriage furnished . . . . .	\$1,700 00
City Engineer . . . . .	2,500 00

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**FIRE DEPARTMENT.**

Chief of Department, team furnished . . .	\$1,700 00
Assistant Chief and superintendent of fire alarm telegraph, team furnished . . . .	1,200 00
Three engineers of steamers, each . . . .	1,000 00
Four drivers of steamers, and hook and ladder Co., each . . . . .	800 00
Five drivers of hose-carriages, Nos. 1, 2, 3, 4, and 5, each . . . . .	650 00
One driver hose 7 . . . . .	325 00
Three stokers, each . . . . .	100 00
Eight foremen of steamers, and hook and ladder and hose Co., each . . . . .	110 00
Eight assistant foremen and clerks of steamers, and hook and ladder and hose Co., each . . . . .	105 00
Forty hosemen and laddermen, each . . . .	100 00

**POLICE DEPARTMENT.**

City Marshal, team furnished . . . . .	\$1,700 00
Captain of police . . . . .	1,200 00
Sergeant of police, \$3 per day. . . . .	
Sixteen policemen, each . . . . .	1,000 00
Two policemen . . . . .	900 00
One policeman . . . . .	825 00
One policeman . . . . .	750 00
First year of service . . . . .	750 00
Second year of service . . . . .	825 00
Third year of service . . . . .	900 00
Fourth and subsequent years . . . . .	1,000 00

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**POOR DEPARTMENT.**

Seven Overseers of Poor, each . . . . .	\$50 00
City Almoner and Clerk of Board . . . . .	1,000 00
Warden of almshouse . . . . .	700 00

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**WATER DEPARTMENT.**

Water Registrar . . . . .	\$2,100 00
Superintendent of water works, team furnished	1,700 00
Inspector of meters and fixtures . . . . .	1,400 00
Clerk . . . . .	624 00
Engineer at pumping station, with house rent	1,200 00
Fireman and watchman, pumping station, with house rent . . . . .	600 00

**SCHOOLS.**

Superintendent . . . . .	\$3,000 00
One teacher . . . . .	3,000 00
One teacher . . . . .	2,200 00
One teacher . . . . .	2,000 00
Ten teachers, at \$1,900 . . . . .	19,000 00
Two teachers, at \$1,800 . . . . .	3,600 00
One teacher . . . . .	1,500 00
One teacher . . . . .	1,200 00
Five teachers, at \$1,000 . . . . .	5,000 00
One teacher . . . . .	950 00
One teacher . . . . .	900 00
Eighteen teachers, at \$700 . . . . .	12,600 00
Fifty-five teachers, at \$620 . . . . .	34,100 00
Five teachers, at \$550 . . . . .	2,750 00
Two teachers, at \$500 . . . . .	1,000 00
One teacher . . . . .	480 00
Two teachers, at \$450 . . . . .	900 00
One teacher . . . . .	400 00
One teacher . . . . .	320 00
One teacher . . . . .	225 00
Secretary of School Committee . . . . .	300 00

**JANITORS.**

One janitor . . . . .	\$768 00
One janitor . . . . .	708 00
One janitor . . . . .	613 00
One janitor . . . . .	588 00
One janitor . . . . .	540 00
One janitor . . . . .	480 00
One janitor . . . . .	372 00
Four janitors, at \$360 . . . . .	1,440 00

One janitor . . . . .	\$276 00
Three janitors, at \$264 . . . . .	792 00
One janitor . . . . .	144 00
One janitor . . . . .	108 00
One janitor . . . . .	96 00

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### LIBRARY.

Librarian . . . . .	\$1,000 00
Assistant librarian . . . . .	500 00
Four assistants . . . . .	1,800 00
Janitor . . . . .	800 00



# REPORT OF CITY CLERK.

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## OFFFICERS

OF THE

# NEWTON CITY GOVERNMENT, 1890.

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## MAYOR.

HEMAN M. BURR.

Office Hour at City Hall:

9 A. M. Daily.

## BOARD OF ALDERMEN.

*President*, GEORGE PETTEE.

WARD ONE.

LEWIS E. COFFIN.

WARD THREE.

LAWRENCE BOND.

WARD FIVE.

GEORGE PETTEE.

WARD TWO.

JOHN A. FENNO.

WARD FOUR.

FREDERICK JOHNSON.

WARD SIX.

WILLIAM F. HARBACH.

WARD SEVEN.

EPHRAIM S. HAMBLIN.

**STANDING COMMITTEES, BOARD OF ALDERMEN.****Committee on Elections and Returns.**

ALDERMEN.

GEORGE PETTEE.

LEWIS E. COFFIN.

**Committee on Enrolled Ordinances and Resolutions.**

ALDERMEN.

LEWIS E. COFFIN.

EPHRAIM S. HAMBLIN.

**STANDING COMMITTEES, BOARD OF MAYOR AND ALDERMEN.****Committee on Police.**

THE MAYOR.

ALDERMEN.

FREDERICK JOHNSON.

JOHN A. FENNO.

**Committee on Licenses, Weights and Measures.**

ALDERMEN.

FREDERICK JOHNSON.

JOHN A. FENNO

Regular meetings of the Board, first and third Mondays of each month,  
at 7.15 P. M.

**Clerk of Board.**

ISAAC F. KINGSBURY

**COMMON COUNCIL.***President*, ELLIOTT J. HYDE.

WARD ONE.

REUBEN FORKNALL.

EDWARD J. H. ESTABROOKS.

WARD THREE.

ARTHUR F. LUKE.

FRANCIS M. DUTCH.

WARD FIVE.

ELLIOTT J. HYDE.

EDWARD L. COLLINS.

WARD TWO.

GEORGE F. CHURCHILL.

GEORGE A. MEAD.

WARD FOUR.

FREDERIC M. CREHORE.

FRANCIS E. PORTER.

WARD SIX.

GEORGE F. RICHARDSON.

ALBERT H. ROFFE.

WARD SEVEN.

LOUIS A. HALL.

WILLIAM C. BATES.



**STANDING COMMITTEE OF COMMON COUNCIL.**

**Committee on Enrolled Ordinances and Resolutions.**

COUNCILMEN.

WILLIAM C. BATES.

ALBERT H. ROFFE.

FRANCIS E. PORTER.

Regular meetings of the Common Council, second and fourth Mondays of each month, 7.15 P. M.

**Clerk.**

JOHN C. BRIMBLECOM.

**JOINT STANDING COMMITTEES, CITY COUNCIL.**

**Committee on Finance and Salaries.**

ALDERMEN.

FREDERICK JOHNSON.

LAWRENCE BOND.

COUNCILMEN.

President ELLIOTT J. HYDE.

ARTHUR F. LUKE.

GEORGE F. CHURCHILL.

**Committee on Accounts.**

ALDERMEN.

LEWIS E. COFFIN.

EPHRAIM S. HAMBLÉN.

COUNCILMEN.

GEORGE A. MEAD.

FREDERICK M. CREHORE.

FRANCIS M. DUTCH.

**Committee on Public Property.**

ALDERMEN.

LEWIS E. COFFIN.

GEORGE PETTEE.

COUNCILMEN.

ALBERT H. ROFFE.

REUBEN FORKNALL.

LEWIS A. HALL.

**Committee on State Aid, Soldiers' Relief and Military Affairs.**

ALDERMEN.

EPHRAIM R. HAMBLÉN.

JOHN A. FENNO.

COUNCILMEN.

ARTHUR F. LUKE.

REUBEN FORKNALL.

ALBERT H. ROFFE.

**Committee on Fuel and Street Lights.**

ALDERMEN.

JOHN A. FENNO.

EPHRAIM S. HAMBLIN.

COUNCILMEN.

EDWARD L. COLLINS.

FREDERICK M. CREHORE.

GEORGE A. MEAD.

**Committee on Fire Department.**

ALDERMEN.

GEORGE PETTEE.

LAWRENCE BOND.

COUNCILMEN.

GEORGE F. RICHARDSON.

LOUIS A. HALL.

EDWARD J. H. ESTABROOKS.

**Committee on Highways.**

ALDERMEN.

WILLIAM F. HARBACH.

GEORGE PETTEE.

LEWIS E. COFFIN.

COUNCILMEN.

ARTHUR F. LUKE.

WILLIAM C. BATES.

GEORGE F. CHURCHILL.

FRANCES E. PORTER.

**Committee on Printing.**

ALDERMAN.

FREDERICK JOHNSON.

COUNCILMEN.

REUBEN FORKNALL.

GEORGE F. RICHARDSON.

**Committee on Ordinances.**

ALDERMEN.

LAWRENCE BOND.

WILLIAM F. HARBACH.

COUNCILMEN.

WILLIAM C. BATES.

EDWARD L. COLLINS.

FRANCIS M. DUTCH.

**Committee on Claims.**

ALDERMEN.

EPHRAIM S. HAMBLÉN.

LAWRENCE BOND.

COUNCILMEN.

President ELLIOT J. HYDE.

GEORGE F. RICHARDSON.

EDWARD J. H. ESTABROOKS.

**Committee on Almshouse and Poor.**

ALDERMAN.

GEORGE PETTEE.

COUNCILMEN.

ALBERT H. ROFFE.

REUBEN FORKNALL.

**Committee on Assessors' Department.**

ALDERMAN.

WILLIAM F. HARBACH.

COUNCILMEN.

EDWARD L. COLLINS.

GEORGE F. RICHARDSON.

**Highway Surveyors.**

ALDERMEN.

WILLIAM F. HARBACH.

GEORGE PETTEE.

LEWIS E. COFFIN.

COUNCILMEN.

ARTHUR F. LUKE.

WILLIAM C. BATES.

GEORGE F. CHURCHILL.

FRANCIS E. PORTER.

**Committee on Parks, Squares, and Burial Grounds.**

ALDERMEN.

GEORGE PETTEE.

FREDERICK JOHNSON.

COUNCILMEN.

LOUIS A. HALL.

ALBERT H. ROFFE.

GEORGE A. MEAD.

**JOINT SELECT COMMITTEES.****Sewerage.**

ALDERMEN.

WILLIAM F. HARBACH.

JOHN A. FENNO.

COUNCILMEN.

EDWARD L. COLLINS.

EDWARD J. H. ESTABROOKS.

FRANCIS M. DUTCH.

**Rules and Orders.**

ALDERMEN.

JOHN A. FENNO.

FREDERICK JOHNSON.

COUNCILMEN.

GEORGE F. RICHARDSON.

ARTHUR F. LUKE.

FREDERIC M. CREHORE.

**Read Fund.**

ALDERMEN.

EPHRAIM S. HAMBLIN.

LEWIS E. COFFIN.

COUNCILMEN.

REUBEN FORKNALL.

LEWIS A. HALL.

EDWARD J. H. ESTABROOKS.

WILLIAM C. BATES.

**Clerk of Committees.**

BENJAMIN F. OTIS.

**SCHOOL COMMITTEE.**

Ward 1.	J. EDWARD HOLLIS,	Term expires, January, 1892.
" 1.	CHARLES A. DREW,	" " 1892.
" 2.	JOHN W. DICKINSON,*	" " 1892.
" 2.	MARY R. MARTIN,	" " 1892.
" 3.	SAMUEL BARNARD,	" " 1891.
" 3.	ABBY E. DAVIS,	" " 1891.
" 4.	DAVID E. BAKER,	" " 1891.

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\* Resigned Sept. 3, 1890; Wallace C. Boyden elected Sept. 24, 1890, to fill vacancy.

Ward 4.	CHARLES E. PARKER,*	Term expires, January, 1891.
" 5.	ALBERT B. PUTNEY,	" " 1893.
" 5.	FRANK J. HALE,	" " 1893.
" 6.	ALBERT D. S. BELL,†	" " 1893.
" 6.	AMOS E. LAWRENCE,	" " 1893.
" 7.	GEORGE C. TRAVIS,	" " 1893.
" 7.	FRANCIS B. HORN BROOKE,	" " 1891.

## SUPERINTENDENT OF SCHOOLS.

THOMAS EMERSON ‡ (also Secretary of School Committee).  
Office at High School.

## TRUSTEES OF NEWTON FREE LIBRARY.

§ JOHN S. FARLOW, *President*.

Alderman EPHRAIM S. HAMBLIN. Councilman EDWARD L. COLLINS.

JULIUS L. CLARKE. EDWIN B. HASKELL.||

A. LAWRENCE EDMENDS. WILLIAM CLAFLIN.

JOSEPH R. LEESON.¶

Meetings first Tuesday in each month, 7 o'clock P. M.

## BOARD OF HEALTH.

THE MAYOR, *ex-officio*.

OTIS PETTEE, *president*.

Alderman LAWRENCE BOND. JESSE F. FRISBIE.\*\*

Councilman LOUIS A. HALL. J. FRANKLIN FULLER.††

## Clerk and Agent of Board, including Inspection of Plumbing.

WILLIAM S. FRENCH.

## Agent for Issue of Burial Permits.

ISAAC F. KINGSBURY.

Meetings, first and third Tuesdays in each month, 4.20 P. M.

\* Died, Oct. 26, 1890.

† Resigned, June 25, 1890. Albert L. Harwood elected Sept. 3, 1890, to fill vacancy.

‡ Resigned, Sept. 1, 1890.

§ Died, Mar. 24, 1890.

|| President, vice Farlow.

¶ Appointed June 2, 1890. to fill vacancy.

\*\* Resigned, June 2, 1890. Davis E. Baker, M. D., appointed same date to fill vacancy.

†† Resigned, Feb. 3, 1890. Edmund T. Wiswall appointed same date to fill vacancy.

**WATER BOARD.**EDWARD W. CATE,\* *President.*

Alderman WILLIAM F. HARBACH. Councilman FREDERIC M. CREHORE.

FRANCIS A. DEWSON.† LEVI C. WADE.

J. CLIFTON WHITNEY, *Clerk.***SINKING FUND COMMISSIONERS AND TRUSTEES  
OF THE READ FUND.**

GEORGE S. BULLENS. GEORGE C. LORD. ALDEN SPEARE.

**CITY SOLICITOR.**

WINFIELD S. SLOCUM (Newtonville).

**ASSESSORS.**SAMUEL M. JACKSON, *Chairman.*

HOWARD B. COFFIN.

CHARLES A. MINER, *Clerk.***Assistant Assessors.**

WARD 1.

WARD 2.

WARD 3.

R. ORLANDO EVANS.‡ ALBERT A. SAVAGE. WILLARD P. PLIMPTON.

WARD 4.

WARD 5.

WARD 6.

BERNARD EARLY.

OTIS PETTEE.

GEORGE WARREN.

WARD 7.

EDWARD W. COBB.

**REGISTRARS OF VOTERS.**GEORGE E. BRIDGES, *Chairman.*

GEORGE H. BOURNE.

RICHARD T. SULLIVAN.§

ISAAC F. KINGSBURY, *Clerk.***OVERSEERS OF POOR.**THE MAYOR, *ex-officio.*

WARD 1.

WARD 2.

WARD 3.

R. ORLANDO EVANS.‡

JOHN F. PAYNE.

ANDREW J. FISKE.

WARD 4.

WARD 5.

WARD 6.

NATHAN MOSMAN, *Clerk.*

EUGENE FANNING.

GEORGE WARREN.

WARD 7.

HENRY C. DANIELS.

Meetings first Thursday in each month, 3.45 P. M.

\*Resigned, June 30, 1890. Edmund T. Wiswall appointed same date to fill vacancy.

†President, vice Cate, resigned.

‡ Died Jan. 21. { Thomas C. Parks elected Feb. 3, 1890, to fill vacancy.

{ Willie M. Russell elected Feb. 17, 1890, to fill vacancy.

§ Term expired. Amos L. Hale, appointed Sept. 23, 1890.

**CIVIL SERVICE EXAMINERS.**LUCIUS G. PRATT, *Chairman.*HENRY C. HAYDEN, *Secretary.*

DWIGHT CHESTER.

FRED L. THAYER, M. D.

**POLICE DEPARMTENT.**CHARLES F. RICHARDSON, *City Marshal.*CHARLES E. DAVIS, *Captain of Police.*CHARLES P. HUESTIS, *Sergeant of Police.*JAMES D. HENTHORN, *Inspector of Police.***Patrolmen.**

CHARLES T. BARTLETT.

ROBERT W. BLUE.

NOAH F. BOSWORTH.

WILLIAM G. BOSWORTH.

BERNARD F. BURKE.

THOMAS C. CLAY.

JOHN W. CONROY.

RICHARD B. CONROY.

CHARLES O. DAVIS.

JOHN J. DAVIS.

JOHN E. DUGAN.

WILLIAM C. EMERSON.\*

FRANK B. FLETCHER.

AMBROSE M. FULLER.

WM. O. HARLOW.

ROBERT S. HARRISON.

EDSON C. HOLMES.

WILLIAM A. LEONARD.

AURELIUS F. G. LIBBY.

FREDERICK M. MITCHELL.

RUFUS H. MOULTON.

MARTIN J. NEAGLE.

JOHN PURCILL.

JOHN W. QUILTY.

JOHN RYAN.

JOSHUA H. SEAVER.

GUY S. SHANNON.

WILLIAM P. SOULE.

RICHARD T. TAFFE.

**ELECTION OFFICERS, 1890.**

See item of Expenses Election and Registration of Voters.

**OFFICERS AT CITY HALL.**

P. O. Address, West Newton, Mass.

City Clerk, ISAAC F. KINGSBURY.

Assistant City Clerk, JOHN C. BRIMBLECOM.

City Treasurer and Collector of Taxes, JOHN A. KENRICK.

\* Removed April 21.



## CITY CLERK'S REPORT.

Deputy Collector of Taxes, MOSES CLARK, JR.

Auditor, BENJAMIN F. OTIS.

Clerk, THEO. A. FLEU.

City Engineer, ALBERT F. NOYES.

Assistant, FRED H. BARNES.

Assessor and Clerk of Board, CHARLES A. MINER.

Water Registrar, J. CLIFTON WHITNEY.

Clerk, MISS E. D. HINCKLEY.

City Almoner, Clerk of Overseers of Poor, NATHAN MOSMAN.

City Messenger, J. D. WELLINGTON.

City Marshal, CHARLES F. RICHARDSON.

OFFICE HOURS:

8.15 A. M. to 12.30 P. M., 2 to 5 P. M.

Except Saturdays in June, July, August, and September,  
when the hours are from 8.15 A. M. to 12.30 P. M.

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Chief of Fire Department, HENRY L. BIXBY.

Hours at City Hall, 2 to 5 P. M.

Superintendent of Streets, WILLIAM E. FULLER.\*

Hours at City Hall, 11.30 A. M. to 12 M., 4.30 to 5 P. M.

Superintendent of Water Works, H. N. HYDE, Jr.

Office at Pipe Yard, Austin Street., Newtonville.

Agent Board of Health, WILLIAM S. FRENCH.

Hours at City Hall, 8.15 to 10.15 A. M.

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\*Died Aug. 27, 1890. Charles W. Ross appointed Dec. 8, 1890 to fill vacancy.



**MARRIAGES REGISTERED, 1890.**

January . . . . .	12	August . . . . .	24
February . . . . .	15	September . . . . .	23
March . . . . .	12	October . . . . .	35
April . . . . .	17	November . . . . .	24
May . . . . .	15	December . . . . .	17
June . . . . .	45		
July . . . . .	19	Total . . . . .	258

**Birthplaces of the Above Contracting Parties.**

	Groom.	Bride.
United States . . . . .	141	131
Ireland . . . . .	54	65
Canada . . . . .	37	41
England . . . . .	17	12
Scotland . . . . .	5	6
Germany . . . . .	2	1
France . . . . .	1	—
West Indies . . . . .	1	—
Norway . . . . .	—	1
Sweden . . . . .	—	1
Totals . . . . .	258	258
American . . . . .	141	131
Foreign . . . . .	117	127
Totals . . . . .	258	258

# BIRTHS REGISTERED IN 1890.

WARDS.	1		2		3		4		5		6		7		Total.		Aggre- gate.
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
January .	2	4	4	7	5	3	4	-	3	-	6	1	1	1	25	16	41
February .	5	7	4	5	2	4	3	2	-	1	1	1	2	1	17	19	36
March .	4	9	5	5	4	1	3	4	9	5	4	5	1	1	22	34	56
April .	5	3	4	2	3	3	4	2	3	3	3	6	2	2	21	19	40
May .	2	2	5	8	4	4	2	6	2	3	5	3	2	1	22	27	49
June .	3	2	4	2	4	4	2	5	4	4	3	3	1	1	21	21	42
July .	4	2	7	6	4	2	2	1	4	3	3	4	5	2	29	20	49
August .	1	2	2	5	4	3	3	4	3	1	5	2	2	2	19	19	38
September .	4	3	1	7	3	2	4	3	10	3	1	4	1	1	27	23	50
October .	5	3	5	6	7	4	4	3	1	1	2	4	1	1	24	20	44
November .	8	6	3	4	5	3	5	5	5	3	5	6	4	4	36	27	57
December .	5	2	4	2	4	3	5	-	4	1	6	4	-	1	28	13	41
Totals .	48	45	48	59	49	36	36	35	37	31	44	41	23	11	285	258	543
Aggregate .	93		107		85		71		68		85		34		543		

**Birthplace of Parents.**

	Fathers.	Mothers .
United States . . . . .	275	272
Ireland . . . . .	137	147
England . . . . .	25	27
Canada . . . . .	23	18
Nova Scotia . . . . .	41	35
New Brunswick . . . . .	11	18
Prince Edward Island . . . . .	6	5
Scotland . . . . .	6	4
Germany . . . . .	6	4
Norway . . . . .	2	2
Sweden . . . . .	2	3
Denmark . . . . .	2	2
Italy . . . . .	3	1
Newfoundland . . . . .	1	2
Switzerland . . . . .	2	1
South America . . . . .	1	1
Africa . . . . .	—	1
Totals . . . . .	543	543
American born . . . . .	275	272
Foreign born . . . . .	268	271
Totals . . . . .	543	543

# STATEMENT OF DEATHS BY MONTHS IN EACH WARD.

Wards.	1		2		3		4		5		6		7		Total.		Aggre- gate.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
January .	4	3	7	8	3	2	6	6	3	3	2	2	3	1	28	31	59
February .	—	5	3	3	2	2	1	1	2	2	3	3	1	1	6	17	23
March .	3	4	3	3	4	2	1	—	—	3	—	—	—	—	14	7	21
April .	6	3	3	2	2	2	2	—	1	1	2	3	1	3	17	14	31
May .	4	2	3	3	2	2	—	—	2	2	1	—	—	—	12	13	25
June .	1	2	1	—	1	2	4	1	1	1	3	—	1	1	8	9	17
July .	7	3	5	—	3	2	3	3	1	1	2	1	—	2	18	12	30
August .	1	5	3	5	5	3	—	—	1	1	2	1	1	—	18	19	37
September .	2	1	3	3	1	3	3	2	4	1	2	2	2	1	17	14	31
October .	4	4	3	5	1	3	—	2	1	—	1	1	—	—	10	15	25
November .	1	5	2	2	1	1	1	2	4	4	1	3	—	—	10	15	25
December .	1	5	3	2	2	2	3	1	1	3	3	2	1	1	14	16	30
Totals .	34	39	42	38	25	28	20	22	21	24	19	21	11	10	172	182	354
Aggregate .	73	80	42	45	53	53	42	42	45	45	40	40	21	21	354	354	

**Birthplace of Parents of Above Deceased Persons.**

	Fathers.	Mothers.
United States . . . . .	159	160
Ireland . . . . .	116	123
Canada . . . . .	36	34
England . . . . .	11	10
Scotland . . . . .	5	4
Germany . . . . .	4	3
Italy . . . . .	2	1
Sweden . . . . .	2	1
Denmark . . . . .	1	—
Switzerland . . . . .	1	—
Unknown . . . . .	17	18
Totals . . . . .	354	354
American . . . . .	159	160
Foreign . . . . .	178	176
Unknown . . . . .	17	18
Totals . . . . .	354	354

**OFFICE FEES.****DR.**

Account, assignment of . . .	\$	50	
Bills of sale . . .		75	
Contract, assignment of . . .		25	
Income, assignment of . . .		50	
Licenses, auctioneer . . .		22	00
billiard table . . .		6	00
bowling alley . . .		16	00
innholder . . .		4	00
intelligence office . . .		16	00
junk . . .		52	00
liquor, 6th class . . .		22	00
marriage . . .		130	00
pool table . . .		12	00
Mortgages . . .		80	00
Mortgages, assignment of . . .		4	75
Mortgages, discharge of . . .		6	25
Naturalization certificates . . .		7	00
Power of attorney . . .		25	
Trustee, assignment to . . .		1	45
Wages, assignment of . . .		6	50
Wages, assignment discharged . . .		75	
Women's certificate of business on own account . . .		75	
			<hr/>
Total fees . . .			\$389 70

**Dogs Licensed.**

1,274 males at \$2 . . .	\$2,574	00	
161 females at \$5 . . .	805	00	
			<hr/>
Total receipts for dogs . . .			3,353 00
			<hr/>
Aggregate collections . . .			\$3,742 70

## CR.

Office fees paid monthly to City

Treasurer . . . . \$389 70

Paid county treasurer, dog license

receipts . . . . 3,066 00

Retained fees 1,435 licenses, at

20 cents . . . . 287 00

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 \$3,742 70
**Dogs are distributed in the various Wards as follows :**

WARDS.	1	2	3	4	5	6	7	TOTALS.
Male . .	142	228	207	188	169	220	120	1,274
Female . .	25	34	23	19	23	22	15	161
Totals . .	167	262	230	207	192	242	135	1,435

An increase of 13 dogs over 1889.

**Enrolled Militia.**

WARDS.	1	2	3	4	5	6	7	TOTALS.
1890 . .	696	767	651	608	625	725	427	4,499
1889 . .	645	730	609	597	623	718	428	4,350
Gain . .	51	37	42	11	2	7	—	150
Loss . .	—	—	—	—	—	—	1	1
Net gain .								149

ISAAC F. KINGSBURY, *City Clerk.*





# REPORT OF REGISTRARS OF VOTERS.

## Assessed Polls.

WARDS.	1	2		3	4		5		6	7	TOTALS.
		Pre. 1	Pre. 2		Pre. 1	Pre. 2	Pre. 1	Pre. 2			
Men .	970	646	523	947	686	200	465	463	1025	640	6,565
Women.	3	1	1	23	1	1	—	1	5	25	61

## Registered Voters and Votes Cast.

(From List used at State Election November 4.)

### REGISTERED.

WARDS.	1	2		3	4		5		6	7	TOTALS.
		Pre. 1	Pre. 2		Pre. 1	Pre. 2	Pre. 1	Pre. 2			
Men .	486	363	374	596	428	127	264	246	609	465	3,958
CAST.											
Men .	414	295	311	517	352	110	206	207	522	404	3,338

## Registered Voters and Votes Cast.

(From List used at City Election December 2.)

### REGISTERED.

WARDS.	1	2		3	4		5		6	7	TOTALS.
		Pre. 1	Pre. 2		Pre. 1	Pre. 2	Pre. 1	Pre. 2			
Men .	530	386	387	632	439	130	294	264	625	498	4,185
Women.	8	9	12	71	17	2	—	4	21	33	177
CAST.											
Men .	456	314	313	527	314	116	270	219	483	417	3,429
Women.	3	6	4	58	6	1	—	3	14	19	114

GEORGE E. BRIDGES, *Chairman.*



## REPORT OF SUPERINTENDENT OF BURIAL GROUNDS FOR 1890.

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Amount expended in caring for the three city cemeteries,  
and the city and soldiers' monument lots in Newton cemetery :

8 1-2 days work for men, at \$2 . . .	\$17 00
50 1-4 days work for men, at \$1.75 . . .	87 93
11 days work for horses, at \$1.50 . . .	16 50
Top-dressing, soldiers' lot . . . . .	10 00
2 padlocks . . . . .	70
Use of tools . . . . .	5 00
Services of H. Ross, superintendent . . .	200 00

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\$337 13

Unexpended balance . . . . .	62 87
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Amount of appropriation . . . . .	\$400 00
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The West Newton cemetery should have more work  
done upon it the coming year; the others perhaps about the  
same.

There were twelve interments in the city cemeteries  
during the year, and one December 21st of last year after  
the report for the year was made, namely:

Winchester street . . . . .	7
Centre street . . . . .	4
City lot . . . . .	2

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13

HENRY ROSS, *Superintendent.*







CITY OF NEWTON.

ANNUAL REPORT

OF THE

BOARD OF HEALTH,

FOR THE YEAR 1890.



NEWTON UPPER FALLS:  
FANNING PRINTING CO.  
1891.





At the regular meeting of the Board of Health held this day, the annual report, as prepared by the Clerk and Dr. Baker, committee for the same, was accepted by the Board and the Clerk was instructed to present the same to the City Council.

WILLIAM S. FRENCH, *Clerk.*

*West Newton, March 17, 1891.*

IN BOARD OF MAYOR AND ALDERMEN, {  
April 6, 1891. }

Accepted and ordered to be printed with other city documents. Sent down for concurrence.

ISAAC F. KINGSBURY, *Clerk.*

IN COMMON COUNCIL, {  
April 6, 1891. }

Accepted in concurrence.

JOHN C. BRIMBLECOM, *Clerk.*



BOARD OF HEALTH OF THE CITY OF NEWTON,  
1890.

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HIS HONOR, HEMAN M. BURR, MAYOR, *ex-officio*.

OTIS PETTEE, *President*.

JESSE F. FRISBIE, M. D.\*

EDMUND F. WISWALL.

DAVID E. BAKER, M. D.†

Alderman LAWRENCE BOND.

Councilman LOUIS A. HALL.

**Clerk and Agent of Board.**

WILLIAM S. FRENCH.

**Agent for Issuing Burial Permits.**

ISAAC F. KINGSBURY, *City Clerk*.

**Consulting Engineer.**

ALBERT F. NOYES, *City Engineer*.

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Meetings: First and Third Tuesdays in each month, 4.20 P. M.

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\* Resignation accepted May 1.

† Appointed June 2.



## PAST BOARDS OF HEALTH.

1874—1885.

THE BOARD OF ALDERMEN.

1885.

Mayor J. WESLEY KIMBALL.  
J. FRANKLIN FULLER.  
Alderman BENJAMIN S. GRANT.

JESSE F. FRISBIE, M. D.  
CHARLES C. BARTON.\*  
Councilman JOHN F. HECKMAN.†

1886.

Mayor J. WESLEY KIMBALL.  
JESSE F. FRISBIE, M. D.  
Alderman BENJAMIN S. GRANT.

OTIS PETTEE.  
J. FRANKLIN FULLER.  
Councilman FRANK EDMANDS.

1887.

Mayor J. WESLEY KIMBALL.  
JESSE F. FRISBIE, M. D.  
Alderman BENJAMIN S. GRANT.

OTIS PETTEE.  
J. FRANKLIN FULLER.  
Councilman HEMAN M. BURR.

1888.

Mayor J. WESLEY KIMBALL.  
JESSE F. FRISBIE, M. D.  
Alderman JAMES H. NICKERSON.

OTIS PETTEE.  
J. FRANKLIN FULLER.  
Councilman HEMAN M. BURR.

1889.

Mayor HEMAN M. BURR.  
JESSE F. FRISBIE, M. D.  
Alderman ADAMS K. TOLMAN.‡

OTIS PETTEE.  
J. FRANKLIN FULLER.  
Alderman EPHRAIM S. HAMBLIN.§

Councilman EDMUND T. WISWALL.

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\* Resigned September 1. Otis Pettee appointed to fill vacancy October 19.

† Resigned October 12. Frank Edmands appointed to fill vacancy October 19.

‡ Resigned September 16. Ephraim S. Hamblen appointed to fill vacancy September 16.

§ Declined October 28. William F. Harbach appointed to fill vacancy November 11.



# REPORT.

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*To His Honor the Mayor and the City Council :*

*Gentlemen :*—In accordance with the usual custom the Board of Health herewith submits its annual report for the year ending Dec. 31, 1890.

No radical departure has been made from the general policy which has been pursued during the past few years. While much of the work taken up by the Board in former years has been somewhat of a preparatory nature, that of the year just closed has supplemented and extended it to a greater degree than has hitherto been attempted. The Board has felt justified in taking up subjects for consideration that were more far-reaching than those which had previously been studied, with the view of looking to the future as well as to the immediate present, and much has been accomplished towards securing permanent results, as soon as the sewers which have been so long desirable from a sanitary point of view shall have been constructed.

Thirty-three Board meetings have been held during the year, seven of them being field meetings for examinations. The members have, therefore, given freely of their time to carry on the work, and while considering the welfare and needs of the public, have properly looked after the rights of the individual. It is a delicate matter to decide where the line shall be drawn between private interest and public wel-

fare, yet when the Board has decided that the necessity existed, and that the time had arrived, the individual has been obliged to give way in favor of the community.

### **Diseases Dangerous to Public Health.**

Almost the first question that arises with reference to the work of this department is, has there been any epidemic of disease? If so, how extensive and how dangerous to the lives and welfare of our citizens did it become, and what were the measures taken by this Board to suppress the same? It will be necessary to refer to the principal ones only in this connection, as a majority of the diseases classed dangerous under authority of the statutes do not become epidemic except at rare intervals. In all cases small-pox, scarlet fever, diphtheria and membranous croup are placarded upon being reported to the Board.

#### **Small-pox.**

No cases of small-pox have been reported in this city since April, 1882, and it is to be hoped that none ever will be again. Still, there is the liability of its being introduced at any time through our mills, and we should therefore be ready for the emergency at all times.

#### **Diphtheria.**

The epidemic of diphtheria which existed in Newton, as well as in nearly the whole of Massachusetts, in 1889, continued through the first four months of 1890, when it stopped. In these four months thirty-six out of a total of forty-nine cases occurred, and the remaining thirteen cases were scattered through the rest of the year.

At the present time there is scarcely a disease which is so dreaded as this. Oftentimes it starts with what is apparently a cold, and is allowed to run until suddenly white spots are developed, and then a physician is hastily summoned and his



decision awaited with bated breath. Its virulence is unquestioned, and it always means that stern measures have got to be taken to overcome its effects. It moves as stealthily as a thief in the night, and while apparently loosening its hold on one point of attack is perhaps undermining the system at another.

Investigations are constantly being made to give a more complete etiological history of this disease. Perhaps the most important results of any have been obtained by Dr. T. Mitchell Prudden of the College of Physicians and Surgeons of New York, assisted by Dr. Northrup. He states that in his bacterial cultivations from known diphtheria he has always found present large numbers of streptococci, while cultivations from parties affected by other diseases have either shown only a small number of them or none at all. One of the most important points which has been determined is the extreme vitality of this streptococcus diphtheria. Dr. Prudden shows in his experiments that diphtheritic membrane could be cultured and produce virulent results after being dried and exposed eighty-five days, and the facility with which the cultures were developed showed that they would withstand the elements for a much longer time.

In view of this startling statement would it not be quite possible for exhalations from diphtheritic patients to become dried and by easily understood methods reach the outer air, being wafted to and fro until they come into contact with a lesion of the throat or nasal passages of some person, which furnishes the right media for culture and thus develops, apparently *de novo*, a new case?

Recognizing to a greater extent than ever before the necessity for the same, our citizens have of their own accord, and under the direction of their physicians, taken care to give the patient as thorough isolation as possible. Consequently the Board has not been obliged to use any unusual restrictive measures.

Careful isolation and prevention of communication between the room of the patient and other rooms, previous to final disinfection, are of the greatest importance and necessity in preventing the spread of this disease.

### **Membranous Croup.**

During the year six cases of this disease were reported to the Board. In sharp contrast to the preceding year there was but one death recorded. At first thought one might say that the position taken by this Board during the preceding year was hardly tenable; but a careful perusal of the reasons given in our preceding report will easily show that this supposition is not true. Our experience has shown that membranous croup, *so-called*, has afterwards developed diphtheria, and that in the majority of cases it has terminated fatally. May not this apparent change for the better in the last year be due to the fact that the same precautions have been required and taken as in diphtheria, and that perhaps our physicians may have been led to recognize at least the close resemblance of the two diseases, and to treat croup medicinally as one form of diphtheria? We see no reason to change our opinion already expressed, and feel that the same restrictive measures should be taken with this disease as with fully declared diphtheria.

### **Scarlet Fever.**

In comparison with the preceding five years this disease has been far less prevalent, only twenty-eight cases having been reported during the year, one-third of them being in the month of January. The directions of the Board relative to isolation were observed with one exception. In this case, notice was given that unless the directions were carefully obeyed the family would be placed under police quarantine. This proved sufficient and no further trouble was experienced.

### **Typhoid Fever.**

Typhoid fever was not as prevalent in 1890 as for the preceding two years, there being but thirty-four cases reported against forty-two the year before, and forty-nine in 1888. The disease made its appearance about the usual date, and was the heaviest during September and October. Until the middle of September the cases could not be considered as having any connection one with another, and seemed to be local rather than general. From this time until the middle of November, however, cases were occurring at Nonantum in such close proximity and frequency as to excite suspicion of there being a common cause. An investigation of all the premises where typhoid had occurred was made and careful inquiries instituted on certain lines for future development. From these it became apparent that local causes could not be found to account for each case. Some of the places were not in a perfect sanitary condition, but these did not affect cases in other places. In no instance could any of it be traced to drinking impure waters, as in every case only the city waters of Newton and Boston had been drank. But another line of investigation revealed the fact that every family in this neighborhood where typhoid appeared were supplied with milk from the same individual.

Inquiry also developed the fact that typhoid had existed in the vicinity of this milkman's farm, and also to quite an extent in Watertown. To follow up this clue would necessitate considerable expense in bacteriological work, and visits to the farm from which the milk was sent out. A consultation was accordingly held with the State Board of Health, and they have taken up the investigations from this point, with such assistance as could be given by this Board.

A visit to the farm showed that on the estate adjoining there had been some three or four cases of typhoid during the summer, one of them fatal; that about the middle of August the well used by the milkman on his own estate had

given out and he had been obliged to dig a new one. While digging the new well, which took him from a month to a month and a half, he had used a well on the estate adjoining, where typhoid existed, although it was not the well used by that family. This well is situated about twenty-five feet from the manure pit under the cow barn and about fifteen feet from the barn yard, and is under what was formerly used as a milk room. The water from this well had been carried by the milkman to his house for household purposes, but he contended that none of it had been used around his milk room or pans. On a second visit the gentleman's wife, however, stated that some of the water had been used in washing cans, etc. If he had used his water at a boiling temperature to wash his cans and other utensils, there might be some reason for believing that this would have killed all germs of the disease, provided any were there, but, unfortunately, this was not the case. The water was not so hot but what one could hold one's finger in it, and was certainly not sufficiently warm to kill the germs of disease. It was also found that some of the cases in Watertown were in families on this milk route. Of course this Board has no right to make any sanitary examinations there. From these investigations it seems very probable that the primary cause of this outbreak was through the milk delivered by this milkman. The State Board are still at work on the problem, and while no positive results may be obtained owing to the lapse of time before the facts were known, still enough circumstantial evidence may be obtained to corroborate the above conclusion.

With the exception of this outbreak the cases reported have been scattered throughout the city and apparently have had no relations with each other.

### **Influenza, or "La Grippe."**

This city, in common with all places in the zone affected, suffered severely from the epidemic of "la grippe" during

the seven weeks from Dec. 20, 1889 to Feb. 11, 1890: new cases not appearing to any extent subsequent to the latter date. The epidemic followed the great lines of travel and its consecutive appearance and spread on this side of the Atlantic can be accounted for in the same way as the extension of other zymotic diseases, i. e., by personal contagion.

But comparatively few deaths from influenza alone are reported. The complications, and particularly pneumonia and bronchitis, were largely responsible for the fatal results as learned from the returns of our Newton physicians. The ordinary mortality from these diseases for the season was more than doubled during the epidemic in question. There was a marked increase, also, in affections of the air passages and of the circulatory system.

Many of the deaths which occurred were of persons previously affected with chronic chest trouble, persons of advanced age, or of those with health impaired from other causes. Many of our citizens suffered from the consequences of the epidemic for many months, and some are still out of health from this cause.

### **Disinfection.**

The records of Boards of Health throughout the country clearly show the advantage of isolation and disinfection in stopping the ravages of contagious diseases. Isolation without disinfection accomplishes a certain amount of good. Disinfection at the close of a case without isolation previously is worth almost nothing. The two together have succeeded, when thoroughly enforced, in controlling the spread of diseases and saving the lives of many. The efficacy of burning sulphur has sometimes been questioned, but its use in Newton has certainly been attended with good results. Only a very small percentage of cases have been recurrences after fumigation, and the greater proportion of the few that have occurred were undoubtedly due to innocu-

lation before disinfection. In the light of Dr. Prudden's researches, as given you in our remarks on diphtheria, may not all of the remaining cases which have appeared in places after fumigation have received the streptococcus into some fold of the tonsillar crypts, and there been kept concealed and preserved until some cold produced the proper cultivating fluid, and thus the disease have been reproduced. On the other hand, allowing that the fumigation fails to accomplish all that is expected of it, what surer thing shall we substitute in its place. While experiment and even practice may show that our ordinary system of fumigating may fail occasionally, our experts have not succeeded in finding anything practical that will kill the disease germs, where sulphur only wounds. Until a better and surer method is given us, this Board intends to do all in its power, with as much care and attention as possible, to prevent the spread of diphtheria, membranous croup, scarlet fever, and small-pox should it appear, by the use of sulphur in fumigation. The greatest difficulty is experienced when, through the force of circumstances, we are obliged to fumigate a portion of the house at a time, the remainder being occupied by the family. The greatest objection that has been raised by our citizens against the necessity of fumigating has been in cases of membranous croup, but the Board feel that it is equally as important as in diphtheria.

In the outbreak of typhoid all vaults of privies and contaminated places, so far as known, were specially disinfected with a combination of copperas, carbolic acid and bi-chloride of mercury, and apparently with good results.

#### **Ashes.**

No change has been made in the methods of collecting the ashes throughout the city, and the work has been done in the usual satisfactory manner by the Highway Department. It is difficult to secure suitable dumping places near the



centres of the villages, and in consequence of this parties who desire filling have been enabled to get the ashes for such purposes at no expense to themselves. Should it be thought advisable at any time to put this collection out under contract, the sale of the material collected will be found to be one source of revenue to the contractor. It would seem that if a contractor can realize anything from such sales as though the city might be able to get some kind of a return, instead of giving it to people whose estates are in reality benefited thereby, but from which the city does not even get a return in additional taxes. It would certainly seem that if private land is to be thus benefited, as though the collection of ashes could with propriety be transferred to this Board, and then it could have the power to either sell the material or use it for filling up wet and swampy lands which are becoming dangerous to public health. This Board has received several requests for such filling, but while the Highway Department has always sent such ashes as were in the immediate vicinity to such places, in answer to our requests, they have not felt at liberty to increase their haul at all if they had a place nearer the point of collection. If the different teamsters were required to keep a record of the number of loads collected, and a tabular statement was made of the same, some idea of the value of this filling could be obtained where it is now impossible.

### **Dumps.**

Numerous complaints have been received by the Board relative to the ash dumps used by the city in various parts of Newton. These complaints are often well founded, and in the absence of any ordinances on the subject it is often difficult for this Board to meet the case. When the city commences to use any land for dumping purposes, it is the signal for every one in the village adjacent thereto, to carry all his refuse to the same place. Strict orders have been

given to the teamsters collecting ashes to refuse to handle or take away any in which they may notice any perishable articles, such as vegetables, fruit, fish, meats, or the like. Consequently the storekeepers must dispose of such refuse as cannot be put in the swill-barrel in some way, and they send it off to the dumps, oftentimes after dark, so that it is next to impossible to tell who the offending individual may be. When the dumps become foul and a nuisance the Board can then step in and forbid any further dumping, and compel the owner of the property to abate the nuisance. But the accumulations of old papers, rubbish, and the like, and the piles of unsightly heaps in the immediate neighborhood of houses, constitutes an annoyance which the Board has felt reluctant to deal with, although they undoubtedly possess the power. If parties were compelled to pay for all filling placed there, a remedy would exist in refusing to deliver them any more unless it was properly taken care of. If this is not advisable, the Board would recommend the adoption of a suitable ordinance which would compel owners of property having dumps on them, either public or private, to take such care of them that they will cease to be an annoyance to the sight or a menace to the health of our citizens. During the year the Board has felt compelled to take action in reference to three such places, in one case ordering all dumping of ashes and objectionable matter stopped, in another requiring a sign to be put up stopping promiscuous dumping, and in the third allowing it to continue through the winter but to be stopped in the spring.

### **Drainage.**

Several petitions for relief under the "wet land" act have been presented to the Board, and some are on the table awaiting action. Action had been taken the year previous on one presented by Mr. E. P. Bond, but before the work was completed it became necessary to give an additional



hearing to the interested parties, after which the work was finished under the direction of the City Engineer, and the benefits for the same have been duly assessed. A hearing was also given on the petition of Alvah Hovey, for drainage between Centre street and Grant avenue, but the Board laid it upon the table at the close of the hearing and no action has since been taken. A petition from M. F. Ballister et al., for drainage east of Centre street between Franklin street and Hyde avenue, received similar action after a proper hearing. Petitions were received from D. F. Inglis et al., for drainage of the Mague meadows, so-called, and A. R. Coe et al., for drainage on Warren avenue and River street. Hearings were given on these and in accordance with the request of this Board an appropriation of \$17,000 has been made to cover the cost of the work, which will be done during 1891. In the fall an important petition for the improvement of the westerly end of Bullough's pond, signed by several of our physicians, was received. While the Board recognized the importance of the work asked for, it felt obliged to lay the petition on the table, and during the present year further action may be taken upon it.

As the surface drainage of the city is to be provided for independently of the sewerage system, it would seem as if all work done by this Board under the provisions of the Public Statutes, Chapter 80, Sections 28-33, should eventually become a part of this drainage system. Oftentimes the Board is obliged to delay action and give needed relief from the fact that there is no money available for such uses, and the City Council does not feel like increasing the year's expenditures in such an unexpected manner. The Board has power to expend an amount not exceeding \$2,000 in this manner, but thus far all requests by this Board of the City Council for an appropriation have been granted. In order that prompt action can be taken, when necessary, upon petitions under the "wet land" act, this Board would recommend to the

City Government the establishment of a loan of \$200,000 to be drawn upon from time to time as necessity arises in the same manner as the water construction account is managed at the present time, viz.; by orders from the City Council passed upon recommendation of the Board of Health.

These petitions must necessarily come before us at various times, and the Board can work more efficiently and rapidly in this direction after some such measure has been passed.

### **Field Days.**

More meetings of the Board have been held in various parts of the city than ever before.

April 15. The Board visited West Newton, Nonantum, Newton, Newton Centre, Thompsonville, and Chestnut Hill, acting upon various petitions, complaints, etc.

May 23. The Board visited Newton and examined various sources of complaint, taking action upon the same.

July 9. Through the courtesy of the Boston Board of Health this Board visited the sewerage works at Cow Pasture and Moon Island, the quarantine station, and the public institutions at Deer Island, using the health boat "Vigilant" for that purpose.

July. 26. Several places in West Newton were visited.

August 16 was an all day trip on the Charles river, from the pumping station at the Upper Falls to the Canoe club house in Waltham. An examination of the banks was made the whole length for the purpose of detecting any sources of contamination of the river from house drains, privies, etc.

September 9. The examination of the banks of the Charles river was further continued from North street to Watertown bridge. A visit was also made to various parts of Newtonville, Newton, and Newton Upper Falls for the purposes of inspection.

October 10. The Board visited the Mague meadows, Cherry, River, and Waltham streets, and Warren avenue, for the purpose of viewing the premises, under the petitions of Inglis et al. and Coe et al.

December 13. Newton Upper Falls, Newton Centre, and Newtonville were visited for purposes of examination.

### **Glanders.**

Only one case of this disease was reported to the Board during the year. As the owner desired to make sure that the animal was afflicted before disposing of him, notice was immediately given the State Cattle Commissioners, and they, in consultation with a local veterinary, decided that the disease was clearly glanders. The horse was accordingly killed and the stable was thoroughly disinfected under the directions of the Commissioners.

### **Pleuro-Pneumonia.**

One case of suspected pleuro-pneumonia was reported to the Board. A veterinary was summoned, made a thorough examination of the animal, and decided that it was not a case of pleuro- or contagious pneumonia, and the cow has since entirely recovered.

### **Hospital for Contagious Diseases.**

The construction of such a building in connection with the Newton Cottage Hospital was brought to the attention of the City Government by His Honor in his inaugural address, and the subject was referred to a special committee. Joint meetings of this special committee, the Board of Health, and the executive committee of the hospital were held, and ground plans, which met the approval of all, were submitted. Estimates, and afterwards revised estimates, were made of the cost of erection, and the special committee reported in

favor of an appropriation of \$10,000 for these buildings, which was made by the City Council. Previous to the adoption of this report articles of agreement were made whereby, in consideration of this amount being paid by the city, the hospital corporation furnishes the land for the same, and agrees to receive such patients as the city may send there, free of expense, and provide the necessary nursing, medical attendance, and take all proper care of the said cases. About the first of July, all preliminary arrangements having been completed, ground was broken and the erection of the buildings begun. At the present time, although not finished they are nearly so, and it is hoped that they will be ready for occupancy early in the present year. The buildings erected are for the care of diphtheria, scarlet fever, and small-pox. There is also a building which will contain a morgue and an autopsy room. When these are finished and in good working order, Newton will be as well equipped for taking care of contagious diseases as any city of its size in the country.

### **House Offal.**

In May, 1889, the contract for collecting house offal, which had been in force for three years, expired. Owing to the difficulties and uncertainties which arose in making a new one, the Board decided to make only a one year contract. This contract expired on the first of May, 1890. In April the contractor made application for a contract to run three years at a price to be agreed upon. The Board not desiring to do this endeavored to renew the old one for another year, but the contractor refused to do it. A hearing was given him by the Board, and he stated that undoubtedly he would be obliged to remove his plant from the "Island," where it was situated, and unless he could be assured of a contract for a sufficient length of time he should not feel like going to the expense and trouble of establishing himself

elsewhere, only to find himself thrown out of his contract within a few months. Other reasons were given, but this was the principal one. As no one else could be found who would take a one year's contract, the Board was compelled to change its policy of one year contracts, and accordingly notices were inserted in the local papers asking for bids for the removal of house offal for three years from May 1st, 1890. Only one party, Mr. Wm. H. Mague, the former contractor, responded, and he was accordingly awarded the contract. In 1889 he had put on a new equipment of teams, built especially for him, and he now has one of the best plants of its size in the State. He has succeeded in obtaining better men for his work, and as compared with former years the complaints have been few. Scarcely a half dozen have been received from the north side of the city, the greatest trouble seeming to be on the south side where the routes are necessarily longer and the houses more scattered. The only portions of the city where collections are not made at the present time are Nonantum and Oak Hill, districts where the citizens have apparently not desired to have the teams sent.

### **Malaria.**

Much has been said in a semi-public way about the relation of malaria to the sewerage question. There has been no marked diminution in the number of cases over the two preceding years. The localities affected have, however changed somewhat, for during 1888 and 1889 the height of the disease seemed to be towards the southerly part of the city, while in 1890 it appeared to rage with greater force on the north side of the city.

There is a concurrence of sanitary opinion in the belief that sewage as such has little or no effect on malaria. The same can be said of cesspools. The disease is related to excess of water in the soil and rise of the ground water

level. It has been for years a familiar fact to residents in the western states that malaria increases the number of its victims rapidly where irrigation has been extensively introduced for agricultural purposes. What, then, is to be expected in the case of a city introducing a water supply without at the same time providing for its outflow? The result is to increase the storage of water in the soil, and, together with a large rainfall, furnishes a prominent factor in the development of paludal disease. The removal of stagnant water and the drainage of swampy soil are the measures that promise the most in the way of relief.

This drainage question is becoming more prominent every year and deserves attention at the same time with the sewerage question. The territory of Newton presents large tracts of swampy soil along the Charles river, and bordering various ponds and brooks. The Board has received many communications with reference to these sections and have taken measures for the relief and betterment of the land in several instances. The City Council has provided for the improved drainage of the Mague meadows. The lands adjoining the upper end of Bullough's pond are in pressing need of relief as soon as money can be appropriated and the plans determined. The thorough and complete drainage of malarial districts will require much time and money in the near future, and adjacent towns will need to combine or co-operate in this work to insure the banishment of this disease from our borders.

#### **Night-Soil.**

The work of removing night-soil and emptying cesspools has been done by the contractor, so far as this Board is aware of, in a perfectly satisfactory manner. Scarcely a complaint has been made during the year to this Board, and in the very few exceptions the complainants became satisfied that the work had been faithfully done. In only one instance



has the reverse of this seemed true, and then the report came to the Board so long after the work was done that no investigation could be satisfactorily made. In this case there *was* probably carelessness on the part of the men performing the work, so that passers-by were annoyed. The contractor has evidently tried to be prompt and efficient, and all requests from this Board have been carefully looked after and given precedence when necessary.

### Plumbing.

Scarcely anything different from what has already been given in these reports can be said at the present time. The inspection of plumbing in new houses has been carried forward in the same manner as heretofore. In one house at Eliot the plumber (not a Newton man) evidently did his best to "skin" the work and get the better of the inspector. In this, however, he failed, and his efforts in this direction must have cost him more than it would to have done a good straight-forward piece of work in the first place.

Early in the year a hearing was given to the Pike Manufacturing Co., upon their petition to be allowed to introduce their system of plumbing and ventilation into Newton. By their system they claim that it is not necessary to ventilate the trap of each fixture, provided it is situated within ten feet of the main stack. After listening to all the testimony in favor and against, the Board decided that it was not advisable to grant the petition, but to require that all traps shall be vented as specified in the rules.

The sanitary examination of houses has been frequently called for by our citizens and by physicians, and in every case the request has been cheerfully granted, and as far as possible peppermint tests have been made to determine whether any leaks existed or not. Poor pan closets, with receivers or back of bowls coated with deposits of fecal and other filth, wood-work and trays saturated with urine, unvented

goose-neck traps forming scarcely any protection at all, with an occasional faulty designing, put in before plumbers were very expert in sanitary knowledge, have been the usual defects. Ordinarily a simple request from this Board is sufficient to correct the trouble, but occasionally more stringent measures have to be adopted. The near approach of sewerage will require a thorough overhauling of much of the old plumbing now in. The greater part of that put in since the fall of 1885 will undoubtedly be found to be satisfactory.

### **Sewerage.**

It is with a great feeling of relief that the Board contemplates the progress that has been made toward the introduction of sewers. The construction of overflow cesspools and blind drains, and the adoption of various other expedients to remedy existing evils, will be done away with. These are in themselves an evil to be greatly deplored, and have been recommended only because of two evils it was wiser to choose the least, and prevent so far as possible the introduction or spread of any epidemic disease. As fast as the sewers are built and put into use, and entrances can be made, it will be the province of this Board to adopt methods and means to correct some of the evils which naturally arise from the cesspool system. The Metropolitan Commission are pushing the construction of the trunk sewer as rapidly as possible, and it is now nearly completed as far as Cottage Farm. The Commissioners at first stated that the main sewer would not be completed until the summer or fall of 1892. But repeated visits of His Honor the Mayor, and the committee on sewerage from the City Council, together with those from members of this Board and others, have so impressed the Commissioners with the desirability and necessity of pushing the work that they have agreed that the main sewer shall be constructed, as far as Newton at least, by the first of January,



1892. As the action taken by the City Council looking to the putting in of local branches has been so recent, and as there is yet considerable to be done in the way of legislation, it is entirely unnecessary for us to go into details at the present time. It only remains for us to add our official testimony, so often repeated, as to the immediate necessity of sewerage, and to request that the construction of the sewers be carried on as expeditiously as possible. At the same time, without raising any unnecessary fears, we ought to call attention to the fact that this wholesale opening up and disturbance of our streets and lands may be liable to cause during that time a decided increase in diseases dangerous to the public health, erysipelas and the like. This has been the experience, we think, of nearly all places substituting the water carriage system for the cesspool. Should it prove that our anticipations are groundless we should be very glad. We do not state this for the purpose of throwing any obstacles in the way of the work, but only for the purpose of impressing upon our citizens the greater need of care in looking after their premises and their own general and personal health during this transition period.

#### **Sterilized Milk.**

As bacteriology has shown that human milk, as it comes from the breast, is absolutely sterile, and that cow's milk kept from twelve to twenty-four hours is full of bacteria, we understand why the latter so often disagrees with the infant.

Prolonged boiling sterilizes or destroys the germs in milk, but produces changes on contact with air, such as the formation of a scum of coagulated serum, albumen and fat; also, according to chemists, expels about three per cent. of carbonic dioxide, nitrogen and oxygen, and leaves a flat taste in the product. Unless the milk is hermetically sealed fresh germs get into it and the good effects of sterilization are lost.

The method of sterilizing by steam is more thorough and complete than that by boiling water. This can be obtained by using an Arnold steam cooker or a double boiler. The germs may be afterwards excluded by plugging the bottle or can with cotton, or by the use of a perforated rubber stopper, sealed by a glass plug. A bottle that will stand heat is essential as well as a sure method of stoppling after the process is completed. The bottles of milk closed by cotton plugs can be heated in an ordinary oven.

The germs increase with great rapidity, some of them doubling in half an hour, so sterilization must be early. Contamination occurs first in milking, then in storage and transfer—all along being accessible, with the ordinary methods of care, to the germs of putrefaction and disease. Simplicity and economy are important in connection with sterilization, as the necessity of this procedure is greatest among the poor and inefficient.

Pasteur proposed to heat milk to  $140^{\circ}$  or  $176^{\circ}$  F. and then rapidly cool it to  $46^{\circ}$  or  $50^{\circ}$  F., the higher temperature being fatal to most fermentation germs, and the rapid chilling of it avoids the multiplication which takes place in warm milk of any that might escape.

To completely sterilize milk on a large scale is impracticable, but it can be chilled in a refrigerator, and this has great effect in retarding the souring process. The large dairy companies in London require their dairymen to chill all the milk furnished, and this milk remains twenty-four hours longer unchanged than the best milk near the city which has not been chilled, and in which the early rising of the cream—the first sign of change—is mistaken for greater richness in the unchilled milk.

The requirements which ought to be exacted of milk producers are:—

1. A competent inspection at stated intervals of the herd, that no diseased milk enter the supply sold.

2. Careful and incessant cleanliness to exclude hay dust and other dirt from the hide of the cow or hands of the milker, from imperfectly cleansed vessels, from air, or from contamination of impure water.

3. The receptacles of milk to have been well cleansed for some time with hot water and steam.

4. To be well covered, cooled, and constantly kept at a low temperature.

### Members.

The beginning of the year saw several important changes in the membership of the Board. During the latter part of 1889 Dr. Frisbie and Mr. Fuller, who had been members of the Board since its organization in 1885, felt that they had done all that could be reasonably asked of them as public minded citizens, and as their private business would have to suffer from a further continuance on the Board, they sent their resignations to His Honor to take effect Jan. 1, 1890. Dr. Frisbie and Mr. Fuller had been thoroughly identified with the work of the Board, and much of its success is due to their faithful and unselfish efforts in behalf of their fellow citizens. They retired from the Board with the regrets and best wishes for the future on the part of those with whom they had been associated.

Dr. Frisbie consented to serve until such time as the Mayor should succeed in finding some one to fill his place. He accordingly retained his membership until May. Dr. Baker was appointed to fill the vacancy.

Alderman Bond was appointed as the Aldermanic representative on the Board, and became a valuable and efficient member. Councilman Hall was selected to take the place which had been held by Mr. Wiswall. His prompt and constant attendance, together with his zeal and devotion, has made him one of the most energetic members of the Board.

Mr. Wiswall having become familiar with the work of

the Board through his previous connection therewith, was induced by His Honor the Mayor to accept the place made vacant by the retirement of Mr. Fuller, and the Board was indeed fortunate in securing the services of one so familiar with the duties of the office.

### **Acknowledgments.**

It again becomes our pleasant duty to acknowledge the many courtesies received from His Honor the Mayor, the members of the City Council, the heads of the different departments, the members of the police force, who are always ready to aid in the work of sanitary policing, the Boston Board of Health, and many others, for which the Board return their sincere thanks.

Respectfully submitted,

For the Board of Health,

WM. S. FRENCH, *Clerk.*

## PUBLIC IMPROVEMENTS AND OTHER STATISTICS.

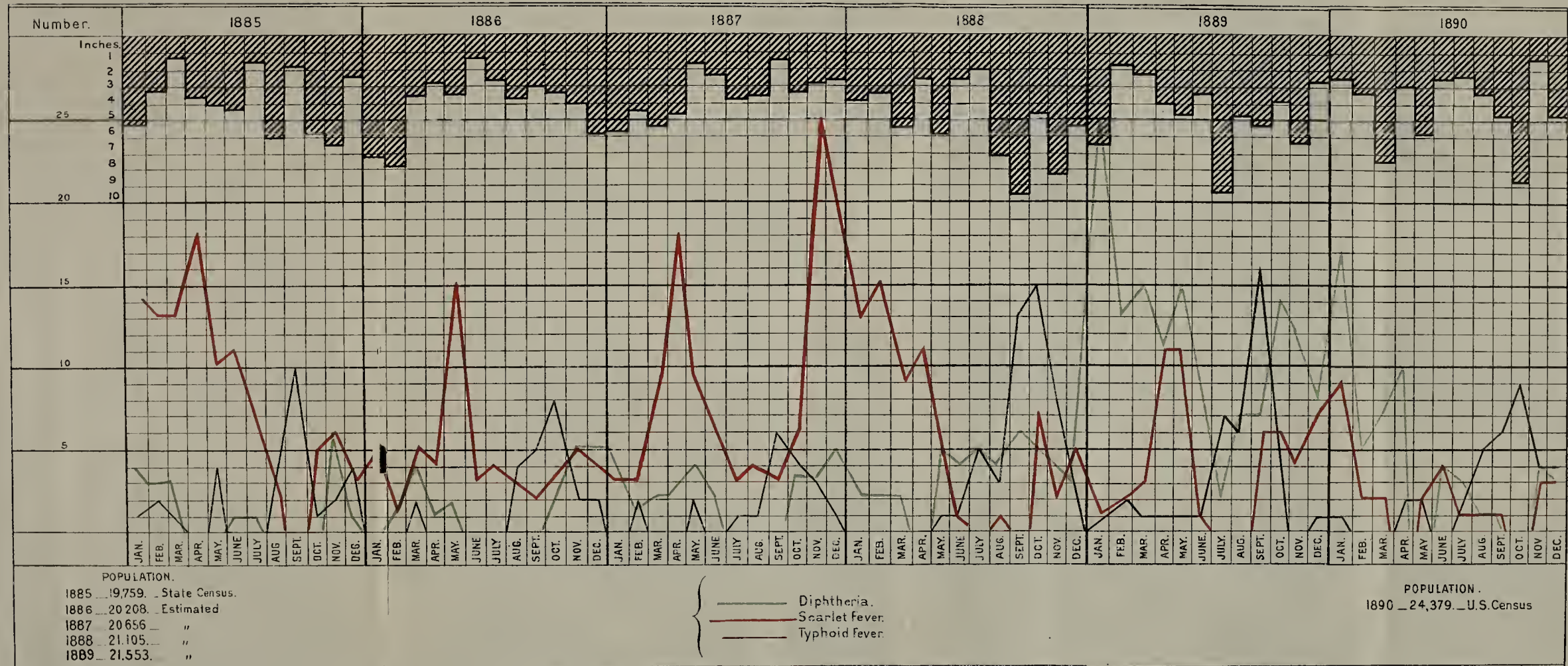
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Population, U. S. census, 1890 . . . . .	24,379
Death rate per 1,000 in 1890 . . . . .	14.52
Area of city in acres . . . . .	11,600
Area of parks in acres . . . . .	60
Gas, miles of mains laid . . . . .	56
Gas, capacity of holders in cubic feet . . . . .	370,000
Lights, number of electric { <sup>arc</sup> incandescent <sup>76</sup> 431 } . . . . .	507
Lights, number of gas . . . . .	785
Lights, number of oil . . . . .	157
Number of churches . . . . .	34
Number of dwellings . . . . .	4,150
Number of volumes in public libraries . . . . .	37,000
Number of public schools . . . . .	21
Number of pupils attending . . . . .	3,973
Number of teachers . . . . .	111
Number of private schools . . . . .	20
Railways, miles of steam . . . . .	12.5
Railways, miles of street . . . . .	3
Streets, average width of main . . . . .	50 to 70 ft.
Streets, miles of accepted . . . . .	111
Streets, miles of unaccepted . . . . .	30
Streets, miles of graveled . . . . .	91
Streets, miles of macadamized . . . . .	50
Streets, miles of concrete sidewalks . . . . .	48

Streets, miles of graveled sidewalks . . .	61
Telephones, number of, in use by citizens . .	375
Telephones, number of, controlled by city . .	50
Water, capacity of reservoir in gallons . .	15,000,000
Water, daily average consumption in gallons .	985,396
Water, daily pumping capacity of engines in gallons . . . . .	6,000,000
Water, number of fire hydrants . . . .	642
Water, number of services in use . . . .	4,440
Water, number of miles of main laid . . . .	93.6



COMPARATIVE VIEW OF CASES OF DIPHTHERIA, SCARLET FEVER, AND TYPHOID FEVER IN NEWTON,  
AS REPORTED MONTHLY DURING THE LAST SIX YEARS, TOGETHER WITH RAINFALL.



NEWTON  
MASS






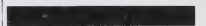

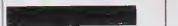





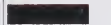




















**TABLE I.**  
**Statement of Deaths by Months in each Ward.**

WARDS.	1		2		3		4		5		6		7		Total.		Aggre- gate.
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
January .	4	3	7	8	3	8	6	6	3	3	2	2	3	1	28	31	59
February .	1	4	3	3	2	2	1	1	..	2	3	3	1	1	7	16	23
March .	3	1	2	3	4	..	1	..	2	3	..	..	..	..	14	7	21
April .	6	3	3	2	2	2	2	..	1	2	2	3	1	3	17	14	31
May .	4	1	5	5	2	2	1	..	2	2	1	..	2	2	13	12	25
June .	1	2	1	..	..	2	..	4	1	1	3	1	..	..	8	9	17
July .	7	3	5	..	3	2	..	3	1	1	2	1	..	2	18	12	30
August .	1	5	5	5	5	3	3	2	1	1	2	3	1	..	18	19	37
September .	2	1	3	3	1	1	3	2	4	1	2	2	2	1	17	14	31
October .	4	4	3	5	1	3	..	2	1	..	1	1	..	..	10	15	25
November .	1	4	1	4	1	1	1	..	4	4	1	3	..	..	9	16	25
December .	1	6	2	2	2	2	3	1	1	3	3	2	1	1	13	17	30
Totals .	35	37	40	40	25	28	21	21	21	24	19	21	11	11	172	182	354
Aggregate .	72	80	42		45		40		22		354		354		354		



**TABLE II.**  
**Comparative View of the Causes of Death during the**  
**Year 1890.**

		5	10	15	20	25	30	35	40
Pneumonia . . . . .	32								
Heart Disease . . . . .	31								
Phthisis ( <i>Consumption</i> ) . . . . .	28								
Old Age . . . . .	18								
Cholera Infantum . . . . .	16								
Bronchitis . . . . .	13								
Cancers . . . . .	13								
Brain Diseases . . . . .	11								
Nephritis ( <i>Bright's Disease</i> ) . . . . .	10								
Apoplexy . . . . .	9								
Diphtheria . . . . .	8								
Enteritis . . . . .	8								
Liver Diseases . . . . .	8								
Meningitis . . . . .	8								
Paralysis . . . . .	8								
Premature Birth . . . . .	8								
Marasmus . . . . .	7								
Convulsions . . . . .	6								
Accidents . . . . .	5								
Fever, Typhoid . . . . .	5								
Debility, General . . . . .	4								
Intestinal Obstruction . . . . .	4								
Meningitis, Tubercular . . . . .	4								
Two diseases . . . . .	each 3								
Three diseases . . . . .	" 3								
Four diseases . . . . .	" 2								
Eight diseases . . . . .	" 2								
Five diseases . . . . .	" 1								
Twenty-eight diseases . . . . .	" 1								

 Deaths from Zymotic Diseases.


 Deaths from Other Diseases.

TABLE III.

**Causes of Death in each Month as Registered by the  
City Clerk, Arranged Alphabetically in Classes.**

DISEASES.	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.	TOTAL.
I. ZYMOTIC.													
Alcoholism . . . . .	-	-	-	-	-	-	1	-	-	-	-	-	1
Cholera Infantum . . . . .	-	-	-	-	-	-	2	11	-	3	-	-	16
Cholera Morbus . . . . .	-	-	-	-	-	-	-	1	-	-	-	-	2
Croup, Membranous . . . . .	-	1	-	-	-	-	-	-	-	-	-	-	3
Diarrhœa . . . . .	-	-	1	-	-	-	-	1	-	-	-	-	2
Diphtheria . . . . .	3	1	-	3	-	-	-	-	1	1	-	1	9
Dysentery . . . . .	-	-	-	-	1	-	-	-	1	-	-	-	2
Erysipelas . . . . .	-	-	-	-	-	-	-	1	-	-	-	-	1
Fever, Malarial . . . . .	-	-	-	-	-	-	-	-	1	-	-	-	1
Fever, Typhoid . . . . .	-	-	-	1	-	-	-	-	-	-	2	1	5
Influenza . . . . .	2	-	-	-	-	-	-	-	1	-	-	-	3
Pyæmia . . . . .	1	-	-	-	-	-	-	-	-	-	-	-	1
Septicæmia . . . . .	-	-	1	-	-	-	-	2	-	-	-	-	3
Whooping Cough . . . . .	1	-	-	-	-	-	1	-	-	-	-	-	2
II. CONSTITUTIONAL.													
Cancer of Bowels . . . . .	-	-	-	-	-	-	-	-	-	-	-	1	1
Cancer of Breast . . . . .	-	-	-	-	-	-	1	-	1	-	-	-	2
Cancer of the Face . . . . .	-	-	-	-	1	-	-	-	-	-	-	-	1
Cancer of Liver & Pancreas . . . . .	-	-	-	-	-	-	1	-	-	-	-	-	1
Cancer of Pylorus . . . . .	1	-	-	-	-	-	-	-	-	-	-	-	1
Cancer of Rectum . . . . .	1	-	-	1	-	-	-	-	-	-	-	-	2
Cancer of Stomach . . . . .	-	-	-	-	-	-	-	-	1	-	-	1	2
Cancer (not stated) . . . . .	1	-	-	-	-	1	-	-	-	1	-	-	3
Dropsy . . . . .	-	-	1	-	-	-	-	-	-	-	1	-	2
Hydrocephalus . . . . .	-	-	-	-	-	-	-	1	-	1	-	-	2
Marasmus . . . . .	1	1	-	1	-	-	-	1	-	2	-	1	7
Meningitis, Tubercular . . . . .	-	1	-	-	-	-	-	1	-	1	1	-	4
Phthisis (Consumption) . . . . .	6	3	3	1	2	2	1	2	3	2	1	2	28
Rheumatism . . . . .	1	-	-	-	-	-	-	1	-	-	-	-	2
Tuberculosis . . . . .	-	-	1	-	-	-	-	-	1	-	-	1	3
III. LOCAL.													
NERVOUS.													
Apoplexy . . . . .	-	2	-	2	1	-	-	1	-	-	2	1	9
Ataxia Locomotor . . . . .	-	-	-	-	1	-	-	-	-	-	-	-	1
Brain, Congestion of . . . . .	-	-	-	-	-	-	-	-	1	-	1	-	2
Brain, Disease of . . . . .	1	-	-	1	-	-	-	-	-	-	-	-	2
Brain, Hemorrhage of . . . . .	2	-	-	-	-	-	-	1	-	-	-	-	3
Brain, Paralysis of . . . . .	-	-	-	-	-	-	-	1	-	1	-	-	2
Brain, Tumor of . . . . .	-	-	-	-	-	-	-	-	-	-	1	-	1
Cerebral Thrombosis . . . . .	1	-	-	-	-	-	-	-	-	-	-	-	1
Convulsions . . . . .	1	-	-	-	1	1	1	-	1	-	1	-	6
Meningitis . . . . .	1	-	3	1	1	-	-	-	1	-	1	-	8
Paralysis . . . . .	1	-	-	1	1	1	-	-	2	-	2	-	8
CIRCULATORY.													
Endocarditis . . . . .	-	-	-	-	-	-	-	-	1	-	-	-	1
Heart, Dilation of . . . . .	-	-	-	-	-	-	-	-	-	-	-	1	1
Heart, Disease of . . . . .	2	4	2	-	1	1	2	1	1	1	-	6	21
Heart Failure . . . . .	1	1	-	-	-	-	1	-	-	-	-	1	4
Heart, Mitral Stenosis of . . . . .	-	-	-	-	-	-	1	-	-	-	-	-	1
Heart, Paralysis of . . . . .	1	-	-	-	-	-	1	-	-	-	-	-	2
Heart, Rheumatism of . . . . .	-	1	-	-	-	-	-	1	-	-	-	-	2
Pericarditis . . . . .	-	-	-	1	-	-	-	-	-	-	-	-	1



TABLE III.—Concluded.

DISEASES.	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.	TOTAL.
<i>SUMMARY.</i>													
Zymotic . . . . .	7	3	2	4	1	—	4	16	4	4	2	2	48
Constitutional . . . . .	11	5	5	3	3	3	3	6	6	7	3	6	61
Local . . . . .	30	13	12	15	16	9	14	12	13	9	14	17	174
Developmental . . . . .	8	2	1	5	3	3	4	3	5	4	2	2	42
Violent . . . . .	2	1	—	2	1	1	2	—	—	—	1	1	11
Total . . . . .	58	23	20	29	24	16	27	37	28	24	22	28	336
Still-born . . . . .	1	—	1	2	1	1	3	—	3	1	3	2	18
Aggregate . . . . .	59	23	21	31	25	17	30	37	31	25	25	30	354

TABLE IV.

**Deaths During the Year 1890, by Sex, Condition, Color, Nativity, Parentage, and Months.**

	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.	TOTAL.
Total Deaths . . .	59	23	21	31	25	17	30	37	31	25	25	30	354
SEX :													
Males . . . . .	28	6	14	17	12	8	18	18	17	10	9	14	171
Females . . . . .	31	17	7	14	13	9	12	19	14	15	16	16	183
CONDITION :													
Single . . . . .	24	14	12	18	14	5	16	24	16	14	14	12	183
Married . . . . .	22	5	8	9	5	7	11	9	9	5	4	17	111
Widows . . . . .	12	4	1	3	4	4	2	2	5	4	6	1	48
Widowers . . . . .	1	..	..	1	1	1	1	2	1	2	1	..	11
Unknown . . . . .	..	..	..	..	1	..	..	..	..	..	..	..	1
COLOR :													
White . . . . .	58	23	20	30	24	15	28	36	30	25	25	30	344
Colored . . . . .	1	..	1	1	1	2	2	1	1	..	..	..	10
NATIVITY :													
Newton . . . . .	18	7	8	14	9	4	12	23	12	10	6	11	134
Massachusetts . . . . .	19	8	2	5	6	6	8	6	6	8	7	7	88
Other States . . . . .	5	2	..	4	2	3	3	5	5	2	6	5	42
England . . . . .	1	..	..	..	..	..	..	..	1	..	1	..	3
Ireland . . . . .	14	3	7	4	6	4	6	3	7	4	2	4	64
Scotland . . . . .	..	..	..	..	1	..	..	..	..	..	..	..	1
Germany . . . . .	..	..	..	1	..	..	..	..	..	1	..	..	2
British America . . . . .	1	3	4	3	..	..	1	..	..	..	3	3	18
Other Countries . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..
Unknown . . . . .	1	..	..	..	1	..	..	..	..	..	..	..	2
PARENTAGE :													
America . . . . .	24	8	6	11	11	7	14	15	15	10	12	12	145
England . . . . .	1	..	1	1	..	..	..	..	1	..	2	..	6
Ireland . . . . .	23	5	8	7	7	6	10	9	10	8	5	11	109
Scotland . . . . .	..	..	..	..	2	..	..	..	..	..	..	..	2
Germany . . . . .	..	..	..	1	..	1	..	..	..	1	..	..	3
British America . . . . .	2	6	4	3	2	1	2	2	..	2	3	2	29
Other Countries . . . . .	..	1	..	..	..	..	1	..	..	..	..	..	2
Mixed . . . . .	7	1	1	6	2	2	2	9	5	4	3	4	46
Unknown . . . . .	2	2	1	2	1	..	1	2	..	..	..	1	12

**TABLE V.**  
**Mortality arranged by Classes for the last Six Years, together with Percentages to Total Mor-  
 tality and Rate per 1000 Inhabitants.**

CLASSES.	1890.				1889.				1888.				1887.				1886.				1885.			
	Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.		Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.		Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.		Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.		Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.		Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.	
Zymotic . . .	48	13.56	1.97		70	21.07	3.25		51	14.82	2.42		49	15.26	2.37		34	12.36	1.68		36	13.14	1.82	
Constitutional . .	61	17.23	2.50		59	18.27	2.74		56	16.28	2.65		51	15.89	2.47		53	19.28	2.62		63	22.99	3.19	
Local . . .	174	49.15	7.14		130	40.25	6.03		174	50.58	8.25		158	49.22	7.65		119	43.27	5.89		114	41.61	5.77	
Developmental . .	42	11.87	1.72		36	11.15	1.67		39	11.34	1.85		37	11.53	1.79		39	14.18	1.93		33	12.04	1.67	
Violent . . .	11	3.11	0.45		14	4.33	0.65		10	2.91	0.47		15	4.67	0.73		6	2.18	0.30		10	3.65	0.51	
Total . . .	336	94.92	13.78		309	95.67	14.34		330	95.93	15.64		310	96.57	15.01		251	91.27	12.42		256	93.43	12.96	
Still-born . . .	18	5.08	0.74		14	4.33	0.65		14	4.07	0.66		11	3.43	0.53		24	8.73	1.19		18	6.57	0.91	
Aggregate . . .	354	..	14.52		323	..	14.99		344	..	16.30		321	..	15.54		275	..	13.61		274	..	13.87	



**TABLE VI.**  
**Total of Deaths, Still-births, and Deaths from Zymotic Diseases, for Six Years with Percentages.**

YEARS.	Total Deaths exclusive of Still-births.	Still-births.	Total Mortality.	Rate per 1000 Inhabitants exclusive of Still-births.	Rate of Still-births per 1000 Inhabitants.	Total Rate per 1000 Inhabitants.	Percentage of Still-births to Total Mortality.	Diphtheria and Croup.	Scarlet Fever.	Typhoid Fever.	Cerebro - Spinal Meningitis.	Whooping Cough.	Measles.	Diarrhæal Diseases.	Small-pox.	Other Zymotics.	Total Zymotics.	Percentage of Zymotic Deaths to Total Mortality.	Population.
1890 .	336	18	354	13.78	0.74	14.52	5.08	10	0	5	0	2	0	22	0	9	48	13.56	24,379
1889 .	309	14	323	14.34	0.65	14.99	4.33	40	1	13	0	1	0	10	0	5	70	21.67	21,553
1888 .	330	14	344	15.04	0.66	16.30	4.07	10	2	11	1	2	1	16	0	8	51	14.82	21,105
1887 .	310	11	321	15.01	0.53	15.54	3.43	6	1	7	0	0	3	22	0	10	49	15.26	20,656
1886 .	251	24	275	12.42	1.19	13.61	8.73	4	2	6	0	2	0	16	0	4	34	12.36	20,208
1885 .	256	18	274	12.96	0.91	13.87	6.57	3	3	7	0	0	5	12	0	6	36	13.14	19,759



**TABLE VII.**  
**Deaths from Zymotic Diseases, with Yearly Percentages to Total Mortality for Six Years.**

	Total Deaths from each Cause.		Deaths per 1000 Inhabitants.		Total Deaths by Sex.		Total Deaths by Sex under Five Years.		Percentages of each cause under Five Years to Total Mortality.		Percentage of each cause to Total Mortality.					
	Total Deaths	from each Cause.	Deaths per 1000 Inhabitants.		M.	F.	M.	F.			1890.	1889.	1888.	1887.	1886.	1885.
Alcoholism . . . . .	1	.041			1	..	..	6	..	..	.28	.31	..	.31	.73	.36
Cholera Infantum . . . . .	16	.657			10	..	..	10	..	4.52	4.52	2.89	2.33	4.36	4.36	3.28
Cholera Morbus . . . . .	1	.041			..	1	..	1	..	.28	.28	..	..	..	..	..
Croup, Membranous . . . . .	2	.082			1	..	..	1	..	.57	.57	3.40	.58	.62	.36	.36
Diarrhea . . . . .	3	.123			3	..	..	2	..	.85	.85	.31	1.16	.31	1.46	.36
Diphtheria . . . . .	8	.328			2	6	1	3	4	1.13	2.26	8.98	2.33	1.25	1.09	.73
Dysentery . . . . .	2	.082			..	2	..	..	..	..	.57	..	1.16	2.49	..	.73
Erysipelas . . . . .	1	.041			1	..	..	..	..	..	.28	..	1.16	.93	..	..
Fever, Malarial . . . . .	1	.041			1	..	..	..	..	..	.28	..	.29	.31	..	.36
Fever, Scarlet . . . . .	..	..			..	..	..	..	..	..	..	.31	.58	.31	.73	1.10
Fever, Typhoid . . . . .	3	.205			2	3	..	..	..	1.41	1.41	4.02	3.20	2.18	2.18	2.56
Influenza . . . . .	2	.082			1	1	1	..	1	.28	.57	..	..	.94	..	..
Measles . . . . .	..	..			..	..	..	..	..	..	..	..	.29	..	..	1.83
Meningitis, Cerebro-Spinal . . . . .	..	..			..	..	..	..	..	..	..	..	.29	..	..	..
Purpura Hem. . . . .	..	..			..	..	..	..	..	..	..	.31	..	..	..	.36
Pyæmia . . . . .	1	.041			..	1	..	..	..	..	.28	.62	.29	.31	..	..
Septicæmia . . . . .	3	.123			..	3	..	1	1	.28	.85	.31	.58	..	.36	..
Whooping Cough . . . . .	2	.082			2	..	2	..	2	.57	.57	.31	.58	..	.73	..
Other Causes . . . . .	..	..			..	..	..	..	..	..	..	..	..	.94	.36	1.11
Total . . . . .	48	1.969			24	24	17	11	28	7.92	13.57	21.67	14.82	15.26	12.36	13.14

TABLE VIII. — Deaths from Nineteen of the Principal Causes.

	Total Deaths from each cause.	Percentage of each cause to Total Mortality.	Deaths per 1000 Inhabitants.	Total Deaths by Sex.		Total Deaths by Sex under five years.		Total Deaths under five years.	Percentage of each cause under five years to Total Mortality.
				Male	Female	Male	Female		
Pneumonia . . . . .	32	9.04	1.31	15	17	1	5	6	1.70
Heart Diseases . . . . .	31	8.76	1.27	16	15	..	3	3	.85
Phthisis (Consumption) . . . . .	28	7.91	1.15	9	19	..	..	..	..
Old Age . . . . .	18	5.09	.74	11	7	..	..	..	..
Cholera Infantum . . . . .	16	4.52	.66	10	6	10	6	16	4.52
Bronchitis . . . . .	13	3.67	.53	8	5	5	2	7	1.98
Cancers . . . . .	13	3.67	.53	3	10	..	..	..	..
Brain Diseases . . . . .	11	3.11	.45	3	8	1	1	2	.57
Nephritis (Bright's Disease) . . . . .	10	2.83	.41	3	7	..	..	..	..
Apoplexy . . . . .	9	2.54	.37	1	8	..	..	..	..
Diphtheria . . . . .	8	2.26	.33	2	6	1	3	4	1.13
Enteritis . . . . .	8	2.26	.33	4	4	3	3	6	1.70
Liver Diseases . . . . .	8	2.26	.33	1	7	..	..	..	..
Meningitis . . . . .	8	2.26	.33	4	4	2	2	4	1.13
Paralysis . . . . .	8	2.26	.33	4	4	..	..	..	..
Premature Birth . . . . .	8	2.26	.33	4	4	4	4	8	2.26
Marasmus . . . . .	7	1.98	.29	3	4	3	3	6	1.70
Convulsions . . . . .	6	1.70	.25	2	4	2	4	6	1.70
Typhoid Fever . . . . .	5	1.41	.21	2	3	..	..	..	..

**TABLE IX.**

**Total Number of Deaths under Five Years, and Five Years and over, for Six Years, with Percentages to the Total Mortality.**

YEARS.	Total Deaths exclusive of Still-births.	Five Years and over.	Under Five Years.	PERCENTAGES.	
				Five Years and over.	Under Five Years.
1890 . . .	336	244	92	72.62	27.38
1889 . . .	309	223	86	72.17	27.83
1888 . . .	330	248	82	75.15	24.85
1887 . . .	310	218	92	70.32	29.68
1886 . . .	251	179	72	71.32	28.68
1885 . . .	256	199	57	77.74	22.26



TABLE XI. — Statement of cases of Diphtheria, Scarlet Fever, Typhoid Fever, and Cholera Infantum by Months in each Ward.

MONTHS.	DIPHTHERIA.							SCARLET FEVER.								
	Ward One.	Ward Two.	Ward Three.	Ward Four.	Ward Five.	Ward Six.	Ward Seven.	Total.	Ward One.	Ward Two.	Ward Three.	Ward Four.	Ward Five.	Ward Six.	Ward Seven.	Total.
January.	6	1	4	3	2	1	..	17	2	7	..	..	..	..	..	9
February	3	..	..	2	..	..	..	5	..	..	..	2	..	..	..	2
March .	4	..	..	..	..	..	3	7	..	..	..	1	..	..	1	2
April. .	6	1	..	..	..	2	1	10	..	..	..	..	..	..	..	..
May . .	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	2
June . .	3	1	..	..	..	..	..	4	4	..	..	..	..	..	..	4 <sup>a</sup>
July . .	1	..	..	..	..	..	2	3	1	..	..	..	..	..	..	1
August .	..	1	..	..	..	..	..	1	1	..	..	..	..	..	..	1
September	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	1
October .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
November	1	2	..	..	1	..	..	4	1	..	..	..	..	1	1	3
December	..	1	..	..	..	1	1	3	1	..	..	..	..	..	2	3
Total .	24	7	4	6	3	4	7	55	12	7	..	4	..	1	4	28

TABLE XI.—Concluded.

MONTHS.	TYPHOID FEVER.							CHOLERA INFANTUM.								
	Ward One.	Ward Two.	Ward Three.	Ward Four.	Ward Five.	Ward Six.	Ward Seven.	Total.	Ward One.	Ward Two.	Ward Three.	Ward Four.	Ward Five.	Ward Six.	Ward Seven.	Total.
January .	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..
February	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
March .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
April .	..	..	2	..	..	..	..	2	..	..	..	..	..	..	..	..
May .	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	..
June .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
July .	..	..	..	..	1	..	..	1	2	..	..	..	..	..	..	2
August .	..	..	..	..	1	4	..	5	3	3	3	..	..	2	1	12
September	1	..	..	1	..	3	1	6	..	1	..	..	..	..	..	1
October .	5	..	..	..	..	4	..	9	..	3	..	..	..	..	..	3
November	3	..	..	..	..	1	..	4	..	..	..	..	..	..	..	..
December	1	1	..	1	1	..	..	4	..	..	..	..	..	..	..	..
Total .	10	1	2	2	4	14	1	34	5	7	3	..	..	2	1	18

**TABLE XII.—Cases of Diphtheria, Scarlet Fever and Typhoid Fever reported during the last Six Years by Months.**

MONTHS.	DIPHTHERIA.						SCARLET FEVER.						TYPHOID FEVER.					
	1890.*	1889.*	1888.	1887.	1886.	1885.	1890.	1889.	1888.	1887.	1886.	1885.	1890.	1889.	1888.	1887.	1886.	1885.
January . . .	17	25	2	5	..	4	9	1	13	3	5	14	1	1	..	..	..	1
February . . .	5	13	2	1	1	3	2	2	15	3	2	13	..	2	..	..	..	2
March . . .	7	15	2	2	4	3	2	3	9	9	5	13	1	1	..	..	1	1
April . . .	10	11	2	2	1	..	..	11	11	18	4	18	2	1	..	..	..	..
May . . .	..	15	..	4	2	..	..	11	5	9	15	10	2	1	1	..	..	4
June . . .	..	7	4	2	..	1	4	1	1	6	3	11	..	1	1	..	..	..
July . . .	3	2	5	..	..	1	1	..	..	3	4	7	1	7	5	1	..	..
August . . .	1	7	4	..	..	..	1	1	1	4	2	2	5	6	13	1	..	3
September . . .	1	7	6	..	..	..	1	6	..	3	1	2	16	16	13	6	5	10
October . . .	..	14	5	3	1	..	..	7	7	6	3	..	9	5	15	4	8	1
November . . .	..	12	4	3	5	6	3	4	2	25	5	6	4	..	8	3	2	2
December . . .	3	8	3	5	5	1	3	7	5	19	4	3	4	1	3	1	2	4
Total . . .	55	136	42	27	19	19	28	52	69	108	53	102	34	42	49	20	23	28
Aggregate . .	298						412						196					
Average . . .	50						69						33					

\*Including Membranous Croup.





ANNUAL REPORT  
OF THE  
FIRE DEPARTMENT  
AND THE  
FIRE AND POLICE TELEGRAPH  
OF THE  
CITY OF NEWTON,  
FOR THE YEAR ENDING DECEMBER 31, 1890.



NEWTON UPPER FALLS:  
FANNING PRINTING CO.  
1891.



MAYOR :  
HON. HEMAN M. BURR.

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JOINT STANDING COMMITTEE ON FIRE  
DEPARTMENT.

---

Alderman GEORGE PETTEE, Chairman.  
Residence, Oak Street, . . . . . Newton Upper Falls.

Alderman LAWRENCE BOND.  
Residence, Elm Street, . . . . . West Newton.

Councilman GEORGE F. RICHARDSON.  
Residence, . . . . . Newton Centre.

Councilman LOUIS A. HALL.  
Residence, 60 Elmwood Street, . . . . . Newton.

Councilman E. J. S. ESTERBROOK.  
Residence, 171 Boyd Street, . . . . . Newton.

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*Meetings last of each month.*



# REPORT

OF THE

## CHIEF OF FIRE DEPARTMENT.

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HEADQUARTERS FIRE DEPARTMENT, }  
CITY HALL, WEST NEWTON, MASS., }  
December 31, 1890.

*To the Honorable, the Mayor and the City Council of Newton :*

GENTLEMEN : — In accordance with the requirements of the ordinance governing this department, I have the honor herewith to submit my twelfth annual report, and the sixteenth of the present organization.

### Fires, Losses, and Insurance.

The calls for the department have been less than the average, numbering . . .	54
Loss on buildings and contents, . . . .	\$44,291 00
Insurance paid on same, . . . . .	42,000 00
Loss over insurance, on insured and uninsured, . . . . .	2,291 00
The largest single loss of the year was the residence of Mrs. F. M. Johnson, Hammond street, amounting on building and contents to . . . . .	
	25,000 00
With an insurance of . . . . .	36,000 00
Assessed value of real and personal property requiring the protection of this department, . . . . .	37,000,000 00

### Manual Force.

This force remains the same as 1889, except the adding of two members to the permanent employes, one as relief engineer and one as driver No. 6 Hose, constituted as follows :

#### PERMANENT OFFICERS AND EMPLOYES OF THE UNIFORMED FORCE.

One Chief of Department and Superintendent of Electric Lines.

One Assistant Chief in charge of fire and police telegraph.

One telegraph line and battery man.

Three engineers of engines.

Two drivers of steam fire engines.

One driver of chemical engine.

One driver of truck.

Six drivers of reels.

One relief engineer.

#### CALL FORCE.

Eight foremen.

Eight assistant foremen.

Thirty-eight hose and truckmen.

A total of seventy-one officers, employes and members.

### Apparatus

In service consists of —

Three steam fire engines (one answering special calls.)

One No. 4 Champion chemical engine.

One truck.

Seven reels.

There is also in the service of the department the following rolling stock :

One Chief's wagon, one sleigh.

One Assistant Chief's wagon, one sleigh.

One spare wagon.

Five exercise wagons.

Six sleighs (heavy.)

No large outlay has been made during the year. The most important item requiring attention is the change of the present heavy one horse reels for hose wagons. A new Abbott Downing wagon was purchased for the Chief of Department, replacing one of the same pattern after ten year's service.

### Hose Inventory.

LOCATION.	COTTON.		RUBBER.	Total Feet.
	Good.	Poor.		
Engine One . . .	500	550	850	1,900
Engine Three . .	1,500	..	50	1,550
Hose Two . . .	1,500	..	50	1,550
Hose Four . . .	1,350	200	50	1,600
Hose Five . . .	..	..	700	700
Hose Six . . .	..	..	750	750
Hose Seven . . .	600	500	50	1,150
Total . . .	5,450	1,250	2,500	9,200

One thousand feet of "White Anchor" rubber hose was purchased, making a total of twenty-five hundred feet of this exceptionally good hose now in service. Companies 2, 3, 4 and 7 also, are provided with fifty feet sections of "White Anchor" for engine and hydrant connections, while compa-

nies 1, 5 and 6 have complete reels of this hose. No requisition for additional hose will be necessary for 1891, except some unusual emergency occurs.

### Horses.

Eighteen horses are owned and used by the department. New horses were purchased by the committee as follows :

- One pair : No. 1 Engine.
- One pair : Chemical A.
- One horse : No. 3 Engine.
- One horse : Chief dept.

These changes being necessitated for obvious reasons, which together with their present condition, and accompanying suggestions, you will find in the report of the department veterinarian herewith annexed.

### Stations.

Necessary repairs will be needed at most of the stations, those requiring the largest outlay being the No. 2 and No. 1 Truck stations. For details of the change suggested at No. 2 station, see recommendations.

At No. 1 truck station, the unsightly storage sheds and steam roller, with other odds and ends, should be removed to some less conspicuous location; additional windows for sunlight and ventilation in the apparatus room being an imperative necessity.

The new double station, nearly completed, at the junction of Boylston and Elliot streets at the Highlands, is an exceptionally fine structure, and a model station for this rapidly growing section of the city. Ample room is provided for a truck and chemical engine.



### Hydrants.

Service in this department has continued satisfactory. I would suggest that the use of hydrants, for purposes other than for fire, be restricted to the minimum, and that, only on permits issued from the water department, and their condition carefully noted after use. Otherwise, there will be a liability to trouble in case of fire. Additional hydrants are needed as follows :

Shaw, between Lander and Winthrop streets.  
Clyde and Walnut streets.  
Washington, between Perkins and Prospect streets.  
Watertown and Bridge streets.  
Highland and Valentine streets.  
Watertown and West streets.  
Hillside ave., between Chestnut and Mt. Vernon streets.  
Watertown, between Adams and Nevada streets.  
Forest and Alpine streets.  
Centre street, opposite national bank.  
Washington and Eddy streets.  
Church, between Centre and Eldridge streets.  
Eddy, between Washington and Watertown streets.  
Centre, between Ward street and Clinton place.  
Margin and Chestnut streets.  
Centre and Rice streets.  
Lexington and Orris streets.  
Centre, between Pelham and Beacon streets.  
Auburn street and Woodland avenue.  
Centre and Cypress streets.  
Auburn, between Melrose and Woodbine streets.  
Willow and Lyman streets.  
Maple street and Berkeley place.  
Elliot, between Oak and Chestnut streets.

### Recommendations.

With the growth of the city, the importance and best interests of the service would seem to require that the head of department should be in immediate touch with the same at all times, and the fact that the present quarters are inconveniently located, leads me to recommend as follows :

That the No. 2 station be enlarged to the full width of the present lot. The first floor of the new extension to be occupied by Chemical A, and the chief's team, with necessary stalls in rear.

Upon second floor, ample accommodations would be provided for headquarters, and much needed sleeping facilities. With this arrangement, much needed room in the old section will be provided for the placing of No. 2 Engine in regular service.

With an average increase of 200 buildings per year to our fire risks, and with no increase in apparatus since 1874, together with the knowledge that fires in some of the districts, would require every available piece of our present equipment, I deem it my duty to urge the adoption of the above changes.

Too much reliance must not be placed upon the anticipated "high service." With the size of the mains limited to six and eight inches, experience in the past has demonstrated that under unusual demands, the pressure could not be maintained to the maximum. Note the Eliot and St. Bernard church fires. At all fires of an exceptional character everywhere, the main reliance has proved to be the steam fire engine.

To retain the services of competent employes, and to induce good men to enter the service, the compensation must be made more nearly equitable with that paid the police and street departments, whose term of duty requires but nine or twelve hours for the day's service, compared with the twenty-

four hours in fire department service, twenty-one hours of which, while not especially laborious, are sufficiently exacting to suit the most unreasonable demands for long hours. As the compensation of permanent employes was reduced in 1876, for reason which do not now exist, it would seem but justice to recommend their restoration to that formerly paid.

I would recommend the purchase of a third size Amoskeag engine to replace the present old and worn out No. 1 Engine, which apparatus has been a constant tax for repairs. Its term of service commenced Oct. 19, 1868, continuing to date. Expensive repairs will soon be a necessity and true economy will be the purchase of a new engine.

Past and present experience both demonstrate that a gradual increase of the permanent employes is for the best interests of the city.

The completion of the new double station at the Highlands will necessitate new apparatus, for which I would recommend a No. 4 Champion chemical engine, (same pattern as engine now in service,) the transfer of No. 1 Truck to this station, and the purchase of a third size aerial truck at No. 1 station.

### **Acknowledgements.**

My acknowledgements are tendered His Honor Heman M. Burr for his uniform courtesy and support. To the chairman and Joint Standing Committee on Fire Department for their interest and cooperation in the maintenance of the present standard of the service. To Assistant Chief, Walter B. Randlett, for the exceptional ability and fidelity displayed in the performance of duty. To officers and members of the force I am especially indebted for the excellent discipline maintained, and the effective service rendered in a district considered one of the largest in the State. To the several Heads of Departments and their subordinates I am indebted for the courtesies of the year.

**Appropriation and Expenditures.**

Appropriation, . . . . .	\$31,205 00
Expenditures, . . . . .	31,811 50

Itemized as follows:

Salaries, permanent and call force, . . .	\$19,961 11
Hay and grain . . . . .	2,652 00
Fire alarm and telephone maintenance, including five fire alarm stations and erecting the same, . . . . .	1,609 22
Purchase and exchange horses, (6) . . .	1,282 00
Coal and wood, . . . . .	1,016 68
Hose, . . . . .	793 76
Gas and water rates, . . . . .	695 69
Shoeing, . . . . .	430 00
Extra horses, . . . . .	368 84
Repairs apparatus and new wagon, (Chief) . . .	445 16
Vacations and Fourth of July detail, . . .	433 60
Veterinarian, salary of, and medicine, . . .	244 40
Incidentals, as per book of Auditor, . . .	1,729 04

**Fire Alarm Telegraph.**

This department has maintained its record for perfect reliability throughout the year. The present four circuit repeater, after a continuous service of seventeen years, shows marked signs of wear and responsibility; this, together with the large extensions of the system, will require a new and larger instrument to properly and safely perform the work.

That the general management of this department by Assistant Chief Randlett has been exceptional, is recorded in the fact, that no part of the system has been injured this year by contact with high pressure currents. That all of the circuits passed through the heavy wind storms of the year without a break, together with the worst electrical storm, on

July 31st, ever witnessed in this vicinity, during which two alarms were correctly sent out, is the class of service best appreciated by those having the care and responsibility of fire alarm telegraphs. 140 miles of over head wire, placed upon 1,050 poles, connect fire alarm headquarters with 84 signal stations, 8 fire stations, and 9 tower bells.

By order of the City Council the following additions have been made:

One bell striker at Nonantum.

Six signal stations and two private stations.

46. Maple and Central streets.

62. Walnut and Duncklee streets.

116. Centre and Franklin streets.

242. Crafts street and Planing Mill.

245. California and Faxon streets.

541. Cottage Hospital.

The following private stations have been connected at expense of occupants:

311. Newton and Waltham Electric Railway station.

614. Gamewell fire alarm works.

A large amount of work has been done in extending and reconstruction of lines the past year.

No. 4 circuit should be re-wired, if nothing else is done. No. 1 circuit should be replaced on Centre street from Clark to Walnut street. Additional signal stations should be placed at—

Pearl street school building.

Waverly avenue and Durant street.

Centre and Ward streets.

Crystal street and Norwood avenue.

Station street and White's block.

Lincoln and Bowdoin streets.

Hartford and Erie streets.

Lincoln street and Meredith avenue.

Elliot and Chestnut streets.  
Beacon and Woodward streets.  
Grove and Hancock streets.  
Central street and Woodland avenue.  
Auburn street and railroad bridge.  
River and Cherry streets.  
Highland and Chestnut streets.  
Prince and Temple streets.

The following locations have been granted and stations will be erected during 1891:

Station street, Thompsonville.  
Otis and Murray streets.  
River and Lexington streets.  
Cherry and Derby streets.

#### **Telephone Department.**

This service, especially over the Fire Department circuit, is not altogether satisfactory, and from a combination of circumstances not easily overcome. The circuit is exceptionally long, with a large number of connections and instruments, together with the induction from the electric railway and belt line lamp circuits, rendering its service during stated hours practically useless. Metallic circuits present serious objections, and its improvement would seem to depend upon future developments.

#### **Police Signal Service.**

In accordance with instructions from the Executive Department, the supervision of the erection and the maintenance of the Gamewell police signal service has been performed by Assistant Chief Randlett. The system consists of forty miles of overhead wire placed upon the fire alarm poles, connecting twenty signal stations with police headquarters. For the details of its service you are respectfully referred to the report of the City Marshal.

## ELECTRICAL DEPARTMENT FOR STREETS AND RAILWAYS.

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The Newton and Watertown Gas and Electric Light and Power Co., under a three year's contract, furnish 80 arc, and 450 incandescent lamps for street lighting. Their lines have received careful attention throughout the year. No accidents or fires have been attributed to this service. The power station of the company is located at Watertown.

### **Electric Railway.**

The Newton and Waltham Electric Railway went into operation in September 1890, and at present operates four miles of track within the city limits, by the "overhead trolley system." Their wires receive daily attention, and have been maintained in good condition. When the change of location in River street is decided, guard wires should be placed in position from Washington street to the Waltham line. The guard wires should be divided into sections, properly insulated, rather than continuous circuits as at present arranged. The power station of this company is located at Waltham.







## REPORT OF DEPARTMENT VETERINARIAN.

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*Henry L. Bixby, Chief of Department :*

*Sir.*—I have again to tender my report as to the condition of the horses of the department, as to their present condition and general health during the year.

The health of the animals during the past year has been fully up to the average, and considering the changes made during that time better than the average. I would suggest that it would perhaps be conducive to greater efficiency and promptness of some of the teams, if a change could be made. The off horse of the pair on Steamer 1 is not to my mind one that can always be depended on for prompt and proper service. While, perhaps, with age and experience this tendency may be overcome, still at the same time, perhaps a change would be advisable. The horse on Hose 4 has been long in service, and is a good, faithful horse, but at the same time requires more attention from the veterinarian with regard to his feet and shoeing than all the others of the department. He is, of course, in more or less discomfort when exercised, and much more when in service, but not being a quitter always gets there. I would therefore call your attention to this case, and, while a change is not absolutely imperative, yet I think it might be made without detriment to the department.

There has been one death during the year, and that coming to the Dick horse on Chemical A, while going to a fire. Cause rupture of the walls of the heart.

The usual number of visits have been made, with more or less extra ones.

I have to acknowledge again the courtesy received from yourself and all members of the department, and also from the committee of the city government in the performance of my duties.

Very truly yours,

MADISON BUNKER,

*Department Veterinarian.*

STATEMENT OF DETAILS OF FIRES AND ALARMS  
FOR THE YEAR ENDING DECEMBER 31, 1890.

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*Jan. 14.* Station 44. 2.33 P. M. Auburndale avenue. One-story frame hennerly, 20x20, owned by Geo. L. Barker. Loss, \$50. Not insured. Cause, set by childred. Apparatus called: Engines 1, A; Hose 2, 4, 5, 6 and Truck 1. Chief and Assistant Chief.

*Jan. 22.* Station 52. 1.46 P. M. Beacon street. Grass land. Cause, careless burning rubbish. Apparatus called: Engines 3, A; Hose 6, 7 and Truck 1. Chief and Assistant Chief.

*Jan. 24.* Station 61. 12.35 A. M. Chestnut and Winter streets. False alarm. Caused by excess of alcoholic heat in key holder. Apparatus called: Engines 3, A; Hose 6, 7 and Truck 1. Chief and Assistant Chief.

*Jan. 29.* Station 65. 12.20 P. M. Erie avenue. Three-story frame dwelling, 28x30, occupied by Jos. Homer. Loss, \$100. Insured. Cause, children playing with matches. Apparatus called: Engines 3, A; Hose 4, 6, 7 and Truck 1. Chief and Assistant Chief.

*Feb. 24.* Station 4. 2.01 A. M. Lexington and Walcott streets. Two-story frame dwelling, 28x40, owned by Geo. F. Pond, occupied by G. Fred Pond. Loss, \$2,625. Insured. Cause, supposed defective furnace. Apparatus

called: Engine A ; Hose 2, 4, 5, 6 and Truck 1. Chief and Assistant Chief.

*Feb. 28.* Verbal. 9.30 A. M. Beacon street and Grant avenue. One-story frame oil shed, 12x15, owned and occupied by Boston Water Works. Loss, \$50. Cause, careless use of matches. Apparatus called: Engine 3. Assistant Chief.

*March 26.* Station 73. 6.57 A. M. Second, station 81. 7.20 A. M. Hammond and Ward streets. Three-story frame dwelling, 40x80, owned by E. R. Knapp, occupied by Mrs. F. M. Johnson. Loss, \$26,600. Insured. Cause, defective gas connection. Apparatus called: Engines 1, 3, A ; Hose 2, 4, 6, 7 and Truck 1. Chief and Assistant Chief.

*March 26.* Verbal. 4.55 P. M. Summer street. Grass land. Cause, set by children. Apparatus called: Hose 3.

*March 30.* Station 27. 10.58 P. M. Greenwood avenue. Two-story frame dwelling, 30x50, owned and occupied by H. H. Tilton. Loss, \$590. Insured. Cause, defective furnace. Apparatus called: Engines 1, A ; Hose 2, 4, 5 and Truck 1. Chief and Assistant Chief.

*April 3.* Station 27. 12.12 P. M. Forest avenue. Grass and fences. Loss, \$15. Cause, careless burning of lawn. Apparatus called: Engines 1, A ; Hose 2, 4, 5 and Truck 1.

*April 5.* Station 65. 12.14 P. M. Boylston street. Grassland. Cause, locomotive sparks. Apparatus called: Engines 3, A ; Hose 4, 6, 7 and Truck 1. Chief and Assistant Chief.

*April 5.* Station 28. 9.15 P. M. Second 9.18 P. M. Crafts and California streets. Two-story frame stable, 60x80, owned and occupied by W. C. Parker. Loss, \$6,500. Insured. Cause, overheated stove. Apparatus called: En-

gines 1, 3, A; Hose 2, 4, 5, 6 and Truck 1. Chief and Assistant Chief.

*April 16.* Station 712. 12.41 P. M. Morton street. Cord wood. Cause, careless burning grass land. Apparatus called: Engines 3, A; Hose 4, 7 and Truck 1. Chief and Assistant Chief.

*April 16.* Verbal. 1.50 P. M. Station street. One-story frame hemmery, 12x16, owned by Edward Hickey. Loss, \$50. Cause, careless burning of grass. Apparatus called: Hose 3.

*April 30.* Station 42. 12.27 P. M. Vesta avenue. Underbrush. Alarm unnecessary. Apparatus called; Engine A; Hose 2, 4, 5, 6 and Truck 1. Chief and Assistant Chief.

*April 30.* Station 74. 1.54 P. M. Beacon and Crystal streets. One-story frame, 8x10, owned by C. S. Davis. Loss, \$25. Cause, hot ashes. Apparatus called: Engines 3, A; Hose 4, 7 and Truck 1. Chief and Assistant Chief.

*May 3.* Verbal. 4.15 P. M. Seaverns street. Grass land. Cause, set by children. Apparatus called: No. 5 Hose. Capt. Washburn.

*May 30.* Station 76. 11.39 A. M. Paul street. One-story frame coal pocket, 30x60, occupied by George W. Warren. Loss, \$15. Insured. Cause, locomotive sparks. Apparatus called; Engines 3, A; Hose 4, 7 and Truck 1. Assistant Chief.

*June 6.* Station 54. 5.20 P. M. Beacon street. Two-story frame dwelling, 25x28, occupied by Jno. Kenny. Cause, children and matches. Apparatus called: Engines 3, A; Hose 2, 5, 6 and Truck 1. Chief.

*June 10.* Station 34. 4.28 A. M. Cherry street. One-story frame hemmery; one two-story frame stable, owned

and occupied by Charles E. Hatfield. Loss, \$1,575. Insured. Cause, defective "brooder." Apparatus called: Engine A; Hose 2, 4, 5 and Truck 1. Chief and Assistant Chief.

*June 11.* Station 5. 5.15 A. M. Washington and Hamilton streets. Three-story stone shoddy mills, 30x100, occupied by W. S. and F. Cordingly. Loss, \$50. Insured. Cause, sparks from furnace. Apparatus called: Engine A; Hose 2, 5, 6 and Truck 1. Chief and Assistant Chief.

*June 11.* Station 621. 7.24 P. M. Needham street. One-story frame charging house, 12x12, occupied by United States Fireworks Manufacturing Company. Loss, \$75. Cause, explosion. Apparatus called: Engines 3, A; Hose 6, 7 and Truck 1. Chief and Assistant Chief.

*July 4.* Verbal. 3.25 P. M. Ash street. Two-story frame stable, 20x30, occupied by W. B. Foulé. Loss, \$10. Cause, fire crackers. Apparatus called: No. 5 Hose. Capt. Washburn.

*July 9.* Verbal. 3.30 P. M. Central street and Woodland avenue. Grass land. Cause, locomotive sparks. Apparatus called: No. 5 Hose. Assistant Foreman Kimball.

*July 14.* Station 41. 12.04 P. M. Charles street. Grassland. Cause, children and matches. Apparatus called: Engine A; Hose 2, 4, 5, 6 and Truck 1. Chief.

*July 14.* Verbal. 4.30 P. M. Rear Brooks street. Two-story frame, 28x30 sheds, unoccupied. Cause, children and matches. Extinguished by members No. 1 Engine.

*July 17.* Station 9. 2.55 P. M. Dedham street. Two-story frame stable, 40x50, occupied by W. A. Mick. Loss, \$1,900. Insured. Cause, children and matches. Apparatus called: Engines 3, A; Hose 7. Chief and Assistant Chief.

*July 31.* Station 18. 6.25 P. M. Second, 6.30 P. M. 19 Howard street. Story and half frame stable, 20x30;

two and a half story frame dwelling, 28x50, occupied by Charles H. Warren. Loss, \$800. Insured. Cause, lightning. Apparatus called: Engines 1, 3, A; Hose 2, 4, 5 and Truck 1. Chief and Assistant Chief.

*July 31.* Station 52. 6.30 p. m. Second, 6.48 p. m. Beacon street. Three-story frame dwelling, 30x30, occupied by W. B. Locke. Loss, \$270. Cause, lightning. Apparatus called: Engines 3, A; Hose 6, 7 and Truck 1. Assistant Chief.

*Aug. 5.* Station 37. 9.29 p. m. Chestnut and Highland streets. Three-story frame dwelling, 40x50, occupied by George A. Frost. Loss, \$50. Cause, ignition kettle of meat. Apparatus called: Engines 1, A; Hose 2, 4, 5 and Truck 1. Chief and Assistant Chief.

*Aug. 6.* Station 65. 9.34 a. m. Woodward and Boylston streets. Two-story frame stable, 20x28, owned by Mrs. Eliza Edmands; occupied by L. F. Mason. Loss, \$425.80. Insured. Cause, children and matches. Apparatus called; Engines 3, A; Hose 6, 7 and Truck 1. Chief and Assistant Chief.

*Sept. 8.* Station 32. 4.58 p. m. River and Elm streets. One-story frame shed, occupied by Henry Goodwin. No loss. Cause, children playing with matches. Apparatus called: Engines 1, A; Hose 2, 4, 5 and Truck 1. Chief and Assistant Chief.

*Sept. 26.* Station 621. 7.21 p. m. Oak and Needham streets. One-story frame laboratory, 40x100, owned and occupied by Newton Chemical Co. Loss, \$1,250. Insured. Cause, ignition of tanks from slack lime. Apparatus called: Engines 3, A; Hose 6, 7 and Truck 1. Chief and Assistant Chief.

*Oct. 2.* Station 64. 3.23 p. m. Walnut and Boylston streets. Stack hay, owned by John Coffee. Loss, \$15.



Cause, children and matches. Apparatus called : Engines 3, A ; Hose 6, 7 and Truck 1. Chief and Assistant Chief.

*Oct. 8.* Station 245. 8.54 A. M. Faxon street. One-story frame shed, occupied by Jno. Zoars. No loss. Cause unknown. Apparatus called : Engines 1, A ; Hose 2, 4 and Truck 1. Assistant Chief.

*Oct. 15.* Station 871 (Brighton Dist.), Boston. Apparatus called : Engine 1. Chief.

*Oct. 24.* Station 54. 8.24 P. M. Beacon street and Varick road. One-story frame stable, 12x20, occupied by Jno. Kenny. Loss, \$239. Insured. Cause, incendiary. Apparatus called, Engines 3, A ; Hose 2, 5, 6 and Truck 1. Chief and Assistant Chief.

*Nov. 4.* Station 5. 8.04 P. M. Beacon street and Varick road. Ruins of Kenny place. Apparatus called : Engines 3, A ; Hose 2, 5, 6 and Truck 1. Chief and Assistant Chief.

*Nov. 5.* Telephone. 7.30 P. M. Beacon street and Glen avenue. Woods. Apparatus called : Hose 3. Assistant Chief.

*Nov. 14.* Station 241. 1.03 P. M. Lincoln court. Two and a half story frame dwelling, owned and occupied by Jno. Buckley. Loss, \$200. Insured. Cause, lighted pipe in clothing. Apparatus called : Engines 1, A ; Hose 2, 4 and Truck 1. Chief and Assistant Chief.

*Nov. 14.* Station 242. 4.30 P. M. Crafts street. Two-story frame planing mill, 30x80, owned and occupied by Henry F. Ross and others. Insured. Cause, overheated bearing. Apparatus called : Engines 1, A ; Hose 2, 4, 5 and Truck 1. Chief and Assistant Chief.

*Nov. 23.* Station 35. 9.50 A. M. Washington street. One-story frame blacksmith shop, 20x30, occupied by A.



Sebers. Loss, slight. Insured. Cause, sparks from chimney. Apparatus called: Engine A; Hose 2, 4, 5 and Truck 1. Chief and Assistant Chief.

*Nov. 25.* Station 16. 6.23 A. M. Eldredge and Church streets. One-story stone (Grace Episcopal) church. No damage. Smoke from chimney. Apparatus called: Engines 1, A; Hose 4 and Truck 1. Chief and Assistant Chief.

*Dec. 2.* Station 14. 11.15 A. M. Walnut park. Three-story frame dwelling. Unoccupied, owned by J. Cheeney Potter. Loss, \$250. Cause, careless thawing of water pipes. Apparatus called: Engines 1, A; Hose 2, 4 and Truck 1. Chief and Assistant Chief.

*Dec. 13.* Station 45. 3.19 A. M. Auburn street. Two-story frame dwelling, 28x30, owned by Henry E. Churchill. Occupied by A. L. Woodside. Loss, \$380. Partial insurance. Cause, rats and matches. Apparatus called: Engine A; Hose 2, 4, 5, 6 and Truck 1. Chief and Assistant Chief.

*Dec. 13.* Station 331. 4.40 P. M. Chestnut and Fuller streets. Two-story frame dwelling, 40x60, owned by Children's Aid Society. Known as Pine Farm school. Loss, \$50. Insured. Cause, defective construction and overheated chimney. Apparatus called: Engines 1, 3, A; Hose 2, 4, 5 and Truck 1. Chief and Assistant Chief.

*Dec. 23.* Station 44. 2.34, P. M. Auburndale avenue. Woodland. Cause, careless burning of grass. Apparatus called: Engine A; Hose 2, 4, 5, 6 and Truck 1. Chief.

*Dec. 23.* Verbal. 7.45 P. M. Temple and Prince streets. Grass on lawn. C. A. Wyman. Cause, careless burning rubbish. Apparatus called: Engine A. Chief.



# APPENDIX.

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## SALARY LIST.

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### Officers.

Chief of Department, per year, . . . .	\$1,700 00
Assistant Chief of Department, per year, . .	1,200 00

### Employes.

Engineer of Engines, per year, . . . .	\$1,000 00
Drivers (2 horses), per year, . . . .	800 00
Drivers (1 horse), per year, . . . .	650 00
Relief Engineer, per year, . . . .	900 00
Line and Battery man, per year, . . . .	800 00

### Call Force.

Foreman of Companies, per year, . . . .	\$110 00
Assistant Foreman of Companies, per year, .	105 00
Firemen, Hose and Truckmen, per year, . .	100 00



## ROSTER OF COMPANIES.

### NO. 1 ENGINE.

STATION.—WASHINGTON OPP. NONANTUM STREET.

FIRST SIZE DOUBLE HUNNEMAN ENGINE, PLACED IN SERVICE OCTOBER 19, 1868; ONE HORSE REEL, CARRYING 750 FEET  
“WHITE ANCHOR” RUBBER HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
14	E. W. Lyons .	Foreman at call	Wash. & Centre Sts.	Plumber .	33
6	J. F. Horrigan, 2d	Assistant “	308 Washington St.	Carriagesmith	30
7	J. McCammon .	Hoseman “	83 Richardson St.	Merchant	37
11	W. Pingree . .	Hoseman “	21 Avon St. . .	Carpenter	32
8	A. R. Carley . .	Hoseman “	236 Washington St.	Painter .	25
4	W. A. Alfred . .	Hoseman “	At Station . . .	Painter .	21
16	B. F. Tripp . .	Fireman “	236 Washington St.	Carpenter	26
EMPLOYES.					
2	F. E. Judkins .	Engineer. . .	At Station . . .	Permanent	43
13	F. A. Dexter . .	Driver . . .	At Station . . .	Permanent	32
15	P. C. Carroll . .	Driver . . .	At Station . . .	Permanent	38

### Honorable Discharge.

ISAAC J. JEFFERSON, Hoseman, . . . . . October 1, 1890.

### Promotions.

F. A. DEXTER, from Reel to Driver No. 1 Engine, . . . November 8, 1890.  
P. C. CARROLL, from Hoseman to Driver No. 1 Reel, . . . November 8, 1890.

**Appointment.**

WM. A. ALFRED, Hoseman, . . . . . November 1, 1890.

**Resignation Accepted.**

JOHN DEARY, Driver No. 1 Engine, . . . . . October 28, 1890.

**CHEMICAL A AND HOSE 2.**

STATION.—WASHINGTON STREET AND LINCOLN PARK.

NO. 4 CHAMPION (DOUBLE TANK). ONE HORSE REEL, 750 FEET OF HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
21	G. H. Haynes . .	Foreman at call	Webster Park . .	Builder . .	55
23	F. H. Humphrey .	Assistant “	Webster St. . .	Merchant .	44
24	H. W. Nicholl . .	Hoseman “	Waltham St. . .	Carpenter .	45
26	Geo. Saunders . .	Hoseman “	At Station . . .	Carpenter .	23
30	E. P. Kebbe . . .	Hoseman “	Washington St. .	Carpenter .	23
28	J. E. Christie . .	Hoseman “	Waltham St. . .	Carpenter .	33
31	C. H. Morse . . .	Hoseman “	At Station . . .	Plumber . .	21
EMPLOYEES.					
17	R. S. Cummings .	Engineer . . .	At Station . . .	Permanent	40
18	C. L. Berry . . .	Driver . . . .	At Station . . .	Permanent	41
29	J. F. Saunders . .	Driver . . . .	At Station . . .	Permanent	23

**Honorable Discharge.**

GEO. H. HAYNES, Foreman, . . . . . December 31, 1890.

JOS. CUMMINGS, Hoseman, . . . . . April 1, 1890.

**Promotions.**

W. M. MOREY, from Hoseman to Driver No. 4 Hose, . . . December 1, 1890.

GEO. K. STACY, from Hoseman to Relief Engineer, . . . January 1, 1890.

**Appointments.**

GEO. F. PEPPIN, Hoseman, . . . . . February 15, 1890.

W. M. MOREY, Hoseman, . . . . . March 1, 1890.

E. P. KEBBE, Hoseman, . . . . . May 15, 1890.

I. F. CHRISTIE, Hoseman, . . . . . August 1, 1890.

CHAS. A. MORSE, Hoseman, . . . . . December 1, 1890.

**Resigned (for cause.)**

GEO. F. PIPPIN, Hoseman, . . . . . September 1, 1890.

**NO. 3 ENGINE.**

STATION.—WILLOW STREET.

SECOND SIZE AMOSKEAG, ONE HORSE REEL, 750 FEET OF HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
34	A. I. English . .	Foreman at call	Centre St. . . .	Builder .	42
41	S. F. Chadbourne	Assistant “	Willow St. . . .	Carpenter	40
42	C. B. Geary . .	Hoseman “	Lyman St. . . .	Builder .	42
38	D. McDonald . .	Hoseman “	Station St. . . .	Carpenter	40
44	C. J. Polly . . .	Hoseman “	Lyman St. . . .	W. Wright	31
37	W. B. Polly . .	Hoseman “	Pelham St. . . .	Clerk . .	29
73	J. McMahon . .	Hoseman “	Willow St. . . .	Blacksmith	31
36	C. E. Thompson .	Fireman “	At Station . . .	Carpenter	31
EMPLOYES.					
32	A. D. Colby . .	Engineer . . .	At Station . . .	Permanent	57
43	P. E. Ellis . . .	Driver . . .	At Station . . .	Permanent	31
46	W. H. Ayles, Jr. .	Driver . . .	At Station . . .	Permanent	23

**Appointment.**

W. H. AYLES, JR., Reel Driver, . . . . . April 1, 1890.

**Honorable Discharge.**

J. F. HIGBEE, Reel Driver, . . . . . April 1, 1890.

**NO. 1 TRUCK.**

STATION. — WASHINGTON OPP. WALKER STREET.

THIRD SIZE TRUCK, 273 FEET LADDERS.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
62	W. S. Higgins .	Foreman at call	Brooks Ave. . .	Builder .	43
60	F. B. Sisson . .	Assistant “	Washington St. .	Carpenter	52
66	J. H. Williams .	Truckman “	Washington St. .	Painter .	54
87	O. Dow . . . .	Truckman “	Murray St. . .	Plumber .	47
68	T. C. Nickerson .	Truckman “	Lowell St. . . .	Builder .	45
65	U. H. Dyer . . .	Truckman “	Spruce St. . . .	Merchant .	38
64	J. Beals . . . .	Truckman “	Washington St. .	Merchant .	41
69	J. Watts . . . .	Truckman “	Washington St. .	Carpenter	34
70	J. F. Horrigan .	Truckman “	Washington St. .	Painter .	47
61	C. Coleman . . .	Truckman “	Allston St. . . .	Carpenter	44
71	M. McLeod . . .	Truckman “	Edinboro St. . .	Carpenter	35
63	A. A. Savage . .	Truckman “	Brooks Ave. . .	Merchant .	44
EMPLOYEE.					
59	J. E. Watson . .	Driver . . . .	At Station . . .	Permanent	35

**HOSE 4.**

STATION. — WASHINGTON OPP. WALKER STREET.

ONE HORSE REEL, 700 FEET OF HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
52	E. C. Waterhouse	Foreman at call	Washington St. .	Carpenter	36
47	A. J. Wandlass .	Assistant “	Allston St. . . .	Carpenter	45
50	D. Archibald . .	Hoseman “	At Station . . .	Merchant .	36
48	N. P. Snell . . .	Hoseman “	At Station . . .	Painter .	26
49	Edward Joyal . .	Hoseman “	Eddy Place . . .	Carpenter	27
EMPLOYEE.					
51	W. M. Morey	Driver . . . .	At Station . . .	Permanent	31

**Honorable Discharge.**

TYLER C. HOLMES, Driver, . . . . . December 1, 1890.



**Appointments.**

NORMAN P. SNELL, Hoseman, . . . . . January 1, 1890.  
EDWARD JOYAL, Hoseman, . . . . . April 1, 1890.

**HOSE 5.**

STATION.—AUBURN, BETWEEN MELROSE AND WOODBINE STS.

ONE HORSE REEL, 700 FEET OF HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
55	J. F. Washburn .	Foreman at call	At Station . . .	Painter .	32
58	J. U. Kimball . .	Assistant “	At Station . . .	Carpenter	43
57	J. Frost . . . .	Hoseman “	Auburn St. . . .	Shoemaker	56
53	C. H. Hall . . .	Hoseman “	Auburn St. . . .	Painter .	41
EMPLOYEE.					
56	J. S. Williams . .	Driver . . .	At Station . . .	Permanent	28

**Appointment.**

JOHN S. WILLIAMS, Driver, . . . . . January 1, 1890.

**HOSE 6.**

STATION.—WASHINGTON AND HAMILTON STREETS.

ONE HORSE REEL, 700 FEET OF HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
75	Bernard Early . .	Foreman at call	Wash. & Wales Sts.	Papermaker	33
76	D. J. Corcoran . .	Assistant “	Hamilton St. . .	Carder .	28
79	P. E. O'Neil . . .	Hoseman “	Grove St. . . . .	Fireman .	33
74	T. E. Healy . . .	Hoseman “	Wales St. . . . .	Painter .	29
77	A. B. Hayden . .	Hoseman “	At Station . . . .	Machinist	23
EMPLOYEE.					
78	D. J. Cooney . . .	Driver . . .	At Station . . . .	Permanent	28

**HOSE 7.**

STATION. — PETTEE STREET.

ONE HORSE REEL, 700 FEET OF HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
82	W. S. Cargill . .	Foreman at call	High St. . . .	W'd-worker	43
84	H. A. Smith . .	Assistant "	Rockland Place .	W'd-worker	36
81	J. E. Trowbridge .	Hoseman "	High St. . . .	Merchant .	54
80	J. T. Thomason .	Hoseman "	Chestnut St. . .	Merchant .	43
83	G. H. Osborn . .	Hoseman "	High St. . . .	Moulder .	42
86	J. L. Randall . .	Hoseman "	Elliot St. . . .	Janitor . .	53

**Statement of Duty Performed by Each Company.**

APPARATUS.	MILES.	HOSE.	LADDERS.	DURATION OF SERVICE.
Engine One . . .	40	1,450 ft.	..	21 hours, 37 minutes.
Engine Three . .	51	4,000 "	..	30 hours.
Chemical A . . .	135	3,600 "	168 ft.	50 hours.
Hose Two . . .	61	2,700 "	..	28 hours.
Hose Four . . .	75	5,650 "	..	38 hours.
Hose Five . . .	53	2,850 "	..	23 hours, 30 minutes.
Hose Six . . .	55	3,150 "	..	29 hours.
Hose Seven . . .	34	2,250 "	..	23 hours, 20 minutes.
Truck One . . .	116	..	882 ft.	35 hours, 45 minutes.
Total . . . .	620	26,050 ft.	1,050 ft.	278 hours, 32 minutes.

# FIRE ALARM DEPARTMENT.

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CITY BUILDING, WILLOW STREET.

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WALTER B. RANDLETT, *Asst. Chief in Charge.*

## Instruments in Circuit at Fire Alarm Headquarters.

Four circuit repeater, 1873,	1
Galvanometers, . . . . .	6
Twelve point switch boards,	2
Morse keys, . . . . .	2
Electric automatic test clock,	1
Electric stop clock, . . . . .	1
Time gong (8 inch.). . . . .	1
Four drop annunciator,	1
Relays, . . . . .	6
Tap bells, . . . . .	4
Extension and call bells,	2
Electric protectors (Rogers patent), . . . . .	1

**Location and Size of Tower Bells.**

BUILDING.	STREET.	WEIGHT.
Armory . . . . .	Washington, opp. Channing St.	2,240 lbs.
Methodist Church . . .	Walnut and Bowers Sts. . . .	1,200 "
City Hall . . . . .	Washington and Cherry Sts. . .	2,650 "
Congregational Church .	Hancock St. and Woodland Ave.	3,250 "
No. 6 Station . . . . .	Washington and Hamilton Sts.	727 "
Methodist Church . . .	Summer St. . . . .	1,500 "
Congregational Church .	Hartford and Lincoln Sts. . . .	1,500 "
Mason School . . . . .	Station and Beacon Sts. . . .	2,000 "
North Church . . . . .	Chapel St. . . . .	900 "

**Location, Circuit, and Size of Gongs and Tap Bells.**

LOCATION.	CIRCUIT.	SIZE.
No. 1 Station . . . . .	No. Four . . .	15 inch.
No. 1 Station . . . . .	Special (Boston)	8 "
No. 2 Station . . . . .	No. Three . . .	15 "
No. 2 Station . . . . .	Special (Boston)	3 "
No. 3 Station . . . . .	No. Four . . .	15 "
No. 3 Station . . . . .	Special (Boston)	3 "
No. 1 Truck Station . . . . .	No. Three . . .	16 "
No. 5 Station . . . . .	No. Two . . .	16 "
No. 6 Station . . . . .	No. Two . . .	15 "
No. 7 Station . . . . .	No. One . . .	16 "
Pumping Station . . . . .	No. One . . .	8 "
Residence Otis Pettee, Secretary G. F. A. Co. .	No. One . . .	8 "
Gamewell Fire Alarm Works . . . . .	No. One . . .	16 "
Residence of Chief of Department . . . . .	No. Three . . .	8 "
Residence Assistant Chief . . . . .	No. Three . . .	8 "
Fire Alarm Headquarters . . . . .	Special (Boston)	8 "

**Location of Signal Stations.**

12. Park and Church streets, Newton.
13. Sargent and Centre streets, Newton.
14. Washington and Jewett streets, Newton.
15. No. 1 Engine Station, Newton.
16. Church and Centre streets, Newton.
17. Pearl and Thornton streets, Newton.
18. Newtonville avenue and Howard street, Newton.

- 112. Washington street and Waverly avenue, Newton.
- 113. Waverly avenue and Vernon street, Newton.
- 114. Eldredge and Vernon streets, Newton.
- 115. Centre and Elmwood streets, Newton.
- 116. Centre and Bennington streets, Newton.
- 117. Washington and Channing streets, Newton.
- 171. Boyd and Jewett streets, Newton.
- 21. No. 1 Truck Station, Newtonville.
- 23. Washington and Walnut streets, Newtonville.
- 24. Chapel and Watertown streets, Nonantum.
- 25. Lowell and Watertown streets, Newtonville.
- 26. Walnut street, opposite High School, Newtonville.
- 27. Forest and Alpine streets, Newtonville.
- 28. Crafts and California streets, Newtonville.
- 212. Watertown and Parsons streets, Newtonville.
- 224. Nonantum Worsted Mills (P), Nonantum.
- 225. Silver Lake Co. (P), Newtonville.
- 226. High School, Walnut street (P), Newtonville.
- 231. Washington Park, Newtonville.
- 241. Adams and Middle streets, Nonantum.
- 242. Crafts street, opposite Planing Mills, Newtonville.
- 245. California and Faxon streets, Nonantum.
- 31. Waltham and Washington streets, West Newton.
- 32. River and Pine streets, West Newton.
- 34. Waltham and Derby streets, West Newton.
- 35. Chemical A Station, West Newton.
- 36. Fuller and Washington streets, West Newton.
- 37. Hillside avenue and Otis street, West Newton.
- 311. Newton and Waltham electric car station, West Newton.
- 312. Police Headquarters, City Hall, West Newton.
- 313. Webster street and Webster place, West Newton.
- 331. Margin street and Boston & Albany railroad station, West Newton.
- 334. Shaw and Winthrop streets, West Newton.
- 336. Woodland Park hotel (P), Auburndale.
- 4. No. 5. Hose Station, Auburndale.
- 41. Auburn and Charles streets, Riverside.
- 42. Woodland avenue and Grove street, Auburndale.
- 43. Ash and Islington streets, Auburndale.
- 44. Lexington and Freeman streets, Auburndale.
- 45. Auburn and Greenough streets, Auburndale.
- 46. Maple and Central Streets, Auburndale.
- 47. Woodland and Vista avenues, Auburndale.
- 421. Hancock and Fern streets, Auburndale.
- 442. Lassell Seminary (P), Auburndale.
- 5. No. 6 Hose Station, Lower Falls.



- 1-3-3** followed by Station number, . . . . . Chemical A.  
**1-2** followed by Station number, . . . . . Truck One.  
**4** followed by Station number, . . . . . Hose Four.  
**5** followed by Station number, . . . . . Hose Five.  
**6** followed by Station number, . . . . . Hose Six.  
**7** followed by Station number, . . . . . Hose Seven.

Companies answering "Special Calls" will wait 30 seconds before leaving quarters, to prevent mistakes.

Every member of the department must thoroughly understand these signals.

### Signals.

**1** blow for test at 11.45 A. M. and 5.45 P. M.; Sundays, 12.15 P. M.

**1-1** two blows will be given when the companies in service at fires have made up.

Should an alarm occur from another station before this signal is struck, companies answering Second will immediately answer on First; companies answering Third will answer second.

**14** blows, followed by the station number, will assemble the police in case of emergency.

### School Signals.

**3-3-3** once. Morning sessions 7.15 or 8.15. Afternoon session at 12.45.





## ORDINANCES RELATING TO FIRE DEPARTMENT.

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### ORDINANCE XIII.

#### Fire Department.

SECTION 1. A Fire Department is hereby established.

Department  
Established  
Charter, § 7.

There shall be a Chief of Fire Department, an Assistant Chief, who shall be operator of the fire alarm under the direction of the superintendent telegraph, three steam fire-engine companies, four hose companies, and one truck company.

Each steam fire-engine company shall consist of eleven men ; to wit, a foreman, an assistant foreman (who shall also be clerk), an engineman, a driver, a fireman and six hosemen.

Number men  
and officers.

Each hose company shall consist of six men ; to wit, a foreman, an assistant foreman (who shall also be clerk), and four hosemen.

Each truck company shall consist of thirteen men ; to wit, a foreman, an assistant foreman (who shall also be clerk), a driver and ten truckmen.

SECT. 2. The Chief of Department shall be responsible for the discipline, good order, and proper conduct of the officers and men

Chief's duties.

constituting the department, and for the good condition of all houses, reservoirs, hydrants, wells, engines, hose, hose-carriages, hooks and ladders, trucks, and all apparatus and furniture thereto belonging and connected with the department. He may suspend any officer or member; and shall forthwith refer his case to the board of aldermen for its action. He shall have the superintendence and, under the direction of the Joint Standing Committee on the Fire Department, the control of the engine and other houses used by the department, of the furniture therein, and of the engines and apparatus, as well as of all other property appertaining to the department.

SECT. 3. The Chief of Department, or, in his absence, the Assistant Chief, shall have sole and absolute control and command of all the other members of the department and of other persons present at fires. The officer in command of the company which first arrives at a

1PUBLIC STATUTES—SECT. 3. The fire-wards, or any three of them, present at a place of immediate danger from a fire, or, where no fire-wards are appointed, the selectmen, or mayor and aldermen present, or, in their absence, two or more of the civil officers present, or, in their absence, two or more of the chief military officers of the place present, may direct any house or building to be pulled down or demolished, when they judge the same to be necessary in order to prevent the spreading of the fire.

SECT. 4. In cities and towns which, by vote of the City Council, or of the legal votes respectively, have accepted the provisions of this section, or of chapter two hundred and one of the statutes of the year eighteen hundred and seventy-three, the engineer of a Fire Department in command at a fire shall, to the exclusion of all other persons, have the power conferred by the preceding section.

Acceptance.

Stat. 1873, chap. 201. Accepted Feb. 12, 1877.

fire shall be the officer in command until the Chief of Department or the Assistant Chief arrives.

SECT. 4. The Chief of Department shall Rolls.  
keep rolls of the companies, specifying the name, age, occupation and residence, and the date of the admission and discharge of each member of the department ; and he shall keep an accurate account of all property belonging to it.

He shall at the close of each three months, Reports of fires,  
etc.  
and oftener if required, make to the city council a detailed report of the condition of the Fire Department, of losses and accidents by fire, with the causes thereof, as well as they can be ascertained, and of the description of the buildings and other property, destroyed or injured, the amount of insurance, and the names of the owners.

SECT. 5. The foreman shall preserve Foremen.  
order and discipline in their respective companies, and shall promptly report in writing the name of any member guilty of misconduct to the Chief of Department, who shall, if he thinks it proper, report thereon to the mayor and aldermen.

The foremen shall cause to be kept by the Rolls.  
respective clerks rolls of the companies, specifying the time of admission and discharge of each member, together with the age, residence, and occupation of each member, and a record of all the city's property intrusted to their care. Their rolls and record-books shall at all times be subject to the inspection of the Chief of Department, and they shall furnish him with copies of abstracts thereof at his request.

Care of apparatus, etc.

SECT. 6. It shall be the duty of the men permanently employed in the department to keep the apparatus entrusted to their care, and the several buildings in which the same is deposited, and all things intrusted to their care, clean, and in order for immediate use, and to wash and dry the hose of the entire department when required so to do ; and they shall clear the snow from the sidewalks and driveways connected with the houses under their charge.

Companies not to leave city, except,

SECT. 7. No company shall leave the city in case of a fire in another city or town, except by order of the Chief or Assistant Chief of Department.

Members not to be transferred, except,

SECT. 8. No member shall be transferred from one company to another, except by order of the Chief of Department.

Badge.

SECT. 9. Every member of the department shall wear at every fire such a badge as the Chief of Department shall prescribe ; and no person without such badge shall, except by permission of the officer in command, enter within lines formed at a fire by such officer.

Shavings and other combustible material.  
Pub. Stats., chap. 104, §§ 1-12.

SECT. 10. The Chief of Department shall examine all places where shavings or other combustible materials are deposited or collected ; and shall see to the removal of the same, whenever, in his opinion, the same are dangerous ; and shall direct the owners, tenants, or occupants of such places to remove the same, which they shall do forthwith ; and, in case of refusal or neglect, he shall cause the same to be removed at the expense of such owners, tenants or occupants.

SECT. 11. The Chief of Department shall observe all buildings in which steam-engines are used, and all buildings in process of erection or alteration, and make a record of such of them as in his judgment may be dangerous, and report thereon to the mayor and aldermen forthwith. Whenever, in the opinion of the Chief of Department, any camphene or other explosive or inflammable fluid or material should be removed, he shall forthwith notify and direct the owner, tenant, or occupant of the premises upon which the same are situated, to remove the same, which he shall forthwith do. In case such tenant, owner, or occupant shall refuse or neglect so to do, the Chief of Department shall cause the same to be removed at the expense of such owner, tenant, or occupant. Nor person shall obstruct the Chief of Department in carrying out the provisions of this section.

Inspection of  
buildings by  
Chief.

Steam Engines.

Camphene, etc.

SECT. 12. The Chief of Department shall on the last day of each month, prepare a pay-roll of all the persons regularly employed in the department, and present it to the committee on the Fire Department for their action. On the last day of June and of December in each year, the clerk of each company shall make a roll, bearing the full name, age, occupation, and residence of every member of the company, specifying also the number of times the company has been called out, and the attendance of each member, to which shall be appended the following certificate :

Chief to pre-  
pare pay-roll.

“ We, the undersigned, do hereby certify that, according to the best of our knowledge and belief, the foregoing persons are

members of——company, and that said company had consisted of——members during the last six months; that during that time they have performed all the duties incumbent upon them as firemen, have been present at every turnout of the company, or been duly excused; and that they are entitled to all the privileges and pay of firemen.”

Certificate of  
pay-roll.

The certificate shall be signed by the foreman and clerk, and shall be delivered to the Chief of Department.

The Chief of Department shall examine these rolls, and if they are found correct, shall approve them, and present them, with the pay-rolls of the several companies, to the committee on Fire Department for their action.

Fire-alarm Tel-  
cgraph.

SECT. 13. The Chief of Department shall have the care and management of the rooms, apparatus and machinery connected with the fire-alarm telegraph, and shall determine to whom shall be intrusted the keys of the signal-boxes. He shall prepare rules and directions for giving alarms of fire through the telegraph.

Keys.

Signal-boxes.

SECT. 14. No unauthorized person shall open any of the signal-boxes, except in case of fire, or interfere with the wires or the poles or other supports of the wires.

False alarms.

SECT. 15. The Chief of Department shall see that every person raising a false alarm of fire is prosecuted.

Gambling.

SECT. 16. No gambling shall be allowed in any building occupied by the Fire Department, nor shall spirituous liquors be kept or used there.

Water from hy-  
drants, etc.

SECT. 17. No person shall draw water from the reservoir or fire-hydrants, except in case of fire, and except as otherwise provided; nor shall any engine, hose, or truck be taken

out of the city without permission of the Chief or Assistant Chief. No part of the apparatus shall be taken from the city, unless to a fire, without special permission from the mayor and aldermen.

SECT. 18. No occupant of any building or room in which there is a hatchway or trap-door shall suffer the same to be left open at night.

SECT. 19. Any member of the department injured or disabled while on actual duty shall receive pay for the time lost in consequence, not exceeding three months. Disabled members.

SECT. 20. No person shall wantonly or carelessly set fire to any tree, bush, grass, leaves, brushwood, rubbish, or other substance in any place in the City of Newton. Setting fire wantonly to trees, etc.

SECT. 21. Whoever shall violate any provision of this ordinance shall forfeit a sum not exceeding twenty dollars. Penalty.





## RULES AND REGULATIONS FOR THE GOVERNMENT OF THE NEWTON FIRE DEPARTMENT.

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### **Chief of Department.**

The Chief of Department shall have the sole and absolute command at fires and alarms of fires over all members of the department and of all other persons present at fires, and of all apparatus and appurtenances belonging to the department, and direct all measures he may deem proper for the extinguishment of fires. He shall devote his whole time to the performance of the duties of his office. He shall visit the engine, hose, and truck stations daily, if possible (Sundays excepted), and report to the fire committee or board of aldermen such suggestions or recommendations as he may deem necessary. He may, from time to time, issue such orders for the government of the members as he may deem necessary, subject to the approval of the mayor and aldermen.

He shall have power to suspend any officer or member of the department for insubordination, disorderly conduct, or neglect of duty, said suspension to continue, pending the action of the mayor and aldermen.

### **Assistant Chief.**

In the absence of the Chief of Department the Assistant Chief shall have the same authority, and exercise the same powers, as the Chief of Department. On arrival at fires he

shall report to the officer in command, and when on duty wear his fire-hat.

He shall have, under the direction of the Chief of Department, general supervision and management of all the telegraph apparatus belonging to the department, and every thing pertaining to the same. He shall keep the same at all times in perfect working order, and repair all breaks in the most expeditious manner, reporting to the Chief of Department for all necessary supplies, and such improvements as he may think advisable. When additional help is necessary, he will make application to the Chief of Department; and, when in the immediate vicinity of the department houses, he may obtain the assistance of the regular members, by direction of the Chief of Department. He shall give necessary instructions to persons in the department and to key-holders. He shall devote his whole time to the duties of the position.

### **Engineers.**

The engineers shall have full control of the engine, bunk, and meeting rooms and basements, and shall report to the Chief of Department at once the name of any member of the department, or other person, guilty of any disorderly conduct, or violation of the rules and regulations; also any damage which their apparatus, or any part of it, their houses or furniture, may have sustained. They shall keep an account of all supplies that come to the station, and promptly report when materials are required for use; keep their engines at all times in condition for immediate service. Delays or accidents resulting from neglect will be sufficient cause for suspension or discharge. They shall instruct their stokers in the management of the engines. The use of all patent preparations for cleaning the metal is strictly prohibited. All material for polishing will be furnished from headquarters. Keep the safety valve set at eighty pounds,

and run the engines according to the line of hose; a hundred pounds will be carried only when working through an extra long line, or two lines of, say, five hundred feet each. Water pressure will never exceed a hundred pounds, except on special order from the Chief or Assistant Chief of Department.

The following whistle-signals will be made use of in this department until further orders:—

One whistle, signals pipemen to look out for water.

Two whistles, signal for burst hose.

Three whistles, signal for coal.

Two short and one one long whistle, signal, "Make up."

Engineers will be on duty at all times. No member shall shut off the water, or in any manner move the machinery attached to the engine, except at request of the engineer.

When the services of the engine are not required, draw the fire, always leaving sufficient quantity for rekindling in case of another alarm while returning. All fuel partially consumed shall be preserved, and not be left burning in the streets.

### **Drivers.**

Drivers permanently employed shall be on duty at all times. They shall be held personally responsible for their stables, and for the care and management of their horses. They must not drive them faster than is consistent with the safety of the public and of the apparatus of the department. They will be held responsible for any damage caused by them, or carelessness displayed in conveying their apparatus to and from fires. Racing to or from fires will not be allowed under any circumstances. If the apparatus of two or more companies shall proceed to or from a fire on the same street, they shall do so in single file, except in case of Chemical Engine, which shall have the "right of way" over all. Re-

turning from fires, they shall drive at a moderate rate of speed. On arriving at fires, the horses shall be blanketed, and kept moving, if possible ; and upon returning to the house, if wet by perspiration, they must be immediately rubbed dry. These instruction will also apply to drivers of hose-carriages and tenders.

### Exercise Hours.

The horses used exclusively by this department will be exercised daily, in accordance with the following order :

IN BOARD OF ALDERMEN,  
April 21, 1884.

ORDERED, That on and after May 1, 1884, the several horses permanently employed in the Fire Department shall be exercised daily, (Sundays excepted), and in the following streets, except when otherwise ordered by the Chief of Department :

NO. 1 ENGINE.—Washington to Church, to Eldredge, to Vernon, to Park street.

NO. 2 ENGINE.—Washington to Elm, to Webster, to Waltham, to Chestnut, to Margin street.

NO. 3 ENGINE.—Willow to Beacon, to Crescent avenue, to Pleasant, to Centre, to Willow street.

NO. 1 TRUCK.—Washington, Parsons to Central avenue.

NO. 4 HOSE.—Washington, Parsons to Central avenue.

Exercise hours to be regulated by Chief of Department, and not to exceed one hour nor less than one-half hour. The rules governing inclement weather and holidays will remain in force. Any employe failing to conform to the above order shall be subject to suspension.

H. L. BIXBY,  
Chief of Department.

I. F. KINGSBURY,  
Clerk.

when the horses have performed no duty within the twenty-four hours next preceding. The horses will not be exercised on public holidays, and never speed them faster than a slow trot.

## **“Right of Way when Proceeding to Fires” as Accorded by Law.**

[CHAP. 37; ACTS 1874.]

*An Act to Punish the Wilful Obstruction of Fire Engines, etc.*

Whoever wilfully and maliciously obstructs or retards the passage of any engine, or other apparatus, of any fire department, while going to a fire, through any street, lane, alley, or other way, shall be punished by imprisonment in the House of Correction not exceeding three months, or by a fine not exceeding fifty dollars. (Approved Feb. 28, 1874.)

All drivers of this department will govern themselves by the above law, and use the utmost discretion at all times to avoid accidents.

### **Stokers.**

The stokers shall respond promptly to all alarms, and when in quarters, they will assist in hitching up. When on duty at fires, they shall be under the direction of their respective engineers, who shall require their whole and undivided attention. On return from fires, they shall remain on duty until relieved by their engineers. They will be required to sleep in their respective stations.

### **Foremen.**

It shall be the duty of the foremen of all companies where permanent men are not employed, to see that the apparatus committed to their care, and the several stations in which the same are deposited, and all things in or belonging to the same, are kept neat and clean, and in order for immediate use; to see that the snow is cleared from the sidewalks and driveways connected with the stations under their charge.

### **Fines.**

Foremen of companies will see that the following fines for non-attendance are rigidly enforced :

For absence from fires and alarms, . . . . .	\$1 00
For absence from regular and special meetings, .	50

### **Assistant Foremen.**

The assistant foreman, shall, in the absence of the foreman, perform all the duties and exercise the same authority as the foreman.

### **Members.**

The members of the several companies shall, upon an alarm of fire from the section of the city to which they are assigned for duty, proceed promptly to the place of the fire in an orderly manner, report to the foreman, and perform any duty that may be required of them. They shall remain on duty until relieved by orders, which shall be given only by the officer in command. If the company to which they are attached does not respond to the alarm on first call, they shall proceed to their engine, hose or truck station, and remain thirty minutes, unless called into service or relieved by dismissal. No member shall be absent from duty for a longer period than one month, except in case of sickness, or by special permission of the Chief of Department. No person whose occupation requires his daily absence from the city will be eligible to membership in this department. Any officer or member of this department who shall remove from the city shall thereupon cease to be a member ; and all members of the department will be required to live within a reasonable distance of their respective stations.

**Substitutes.**

Each member may have two substitutes to take the place of call-members absent from the city or disabled by sickness. They shall be approved by the Chief of Department, and shall, if for services rendered for a period of fifteen days or more, receive the same compensation as their principal, to be deducted from their principal's pay. Any substitute serving for a less time than fifteen days shall be paid the amount of fines imposed on his principal for non-attendance at fires or alarms. Any member failing to pay his substitute on the following pay-day shall be subject to dismissal. No substitute can be assigned to duty in place of his principal during the time of a fire or an alarm of fire.

**Bunkers.**

Call-men to whom beds are assigned will be required to retire at or before 11 P. M., unless excused by the engineer or person in charge of the station, and will not be allowed to use or occupy the same during the day, unless deprived of their usual rest by the performance of active fire duty, or in case of sickness sufficient to require the use of the same. No visitors will be allowed in the bunk-rooms after hours, or at any other time while the beds are occupied. It shall be the duty of the engineer or member in charge of the station, to immediately report to the Chief of Department any misconduct or violation of the rules on the part of persons occupying said beds. The occupant of each bed will be held responsible for the cleanliness of the same, and for any damage to either bed or bedding through carelessness. All members occupying sleeping quarters in the engine, hose, and truck station shall vacate their beds from May 1 to October 1 at 6.30 A. M., and from October 1 to May 1 at 7 A. M.



### **Horses and Feeding.**

The system of feeding shall be as follows, particular care being exercised not to feed or water the horses while too warm:—

Four quarts of oats morning and night; this with about eight or ten pounds of hay after bedding the horses, will constitute the daily allowance for each horse, and must not be exceeded. But when it shall be ascertained that a less allowance is sufficient, the driver will exercise discretion as to the quantity. The stalls to be cleaned early in the morning; after breakfast the horses groomed and the harnesses cleaned. Horses sick or disabled will be immediately reported to the Chief of Department. No alteration or changes in harness will be permitted, except upon authority of the Chief of Department. When horses are in the shop for shoeing, the drivers shall remain with them, and shall report to the Chief of Department any unnecessary delay, or any work improperly executed, and will allow but one shoe to be removed at a time.

### **Badges.**

All members of the department shall be provided with a badge, to be known as the Regulation Badge of the department, which shall be worn in a conspicuous place during the time they are on duty; and no member shall lend his badge on any pretext whatever. Any member losing his badge shall immediately notify the Chief of Department, and use all diligence to recover the same. He shall be required to pay for the same before another badge will be provided, the money so paid to be refunded should the badge be found. These badges shall at all times remain the property of the city. Any member loaning his badge to any person not connected with the department shall be subject to dismissal. No person will be recognized as a member of this department unless wearing his badge.



**Roll-Call.**

Upon returning from a fire, or an alarm of fire, the assistant foreman, or, in his absence, the foreman, shall call the roll, and report to the Chief of Department any member absent, and the excuse for the same; and in no case shall the permanent members act as substitutes for the call members, or answer for them at roll-call.

**Leave of Absence.**

No permanent member shall leave the city, or be granted leave of absence, without notifying the Chief of Department, and procuring a substitute to his acceptance; and the substitute shall be on duty before the applicant leaves his post; and the pay of the substitute may be deducted from the pay of the principal. Any member of the call force expecting to be absent from the city shall notify the foreman of his company, and procure a substitute to his satisfaction. Whenever leave of absence is granted to bunkers, they shall report the same to the person in charge of their station, and shall, in like manner, report their return.

**Supplies.**

No member of the department will be allowed to make any purchase for the department chargeable to the city except by order of the chairman of fire committee or Chief of Department.

**Meals.**

For permanent members three hours daily will be allowed for meals, and will be so arranged that there shall be at all times one member on duty.

### **Duties at Fires.**

At all fires, the first officer arriving shall, in the absence of the Chief or Assistant Chief, and until his arrival, act as Chief of Department, and be obeyed and respected accordingly. The men are required to move quickly, and obey orders promptly and without criticism. The officers in charge of the several companies, shall, immediately on their arrival at a fire, report to the officer in command, and remain for orders. No company shall leave the fire-grounds, or take the apparatus of which they have charge therefrom, without the order or permission of the officer in command. Any neglect of duty, disobedience of orders, or disrespect to officers, shall be reported to the Chief of Department. No member shall wilfully or maliciously direct a stream of water upon any fireman or citizen. All disputes which may arise between companies or individual firemen when on duty shall be settled by the engineer in command. Members of companies that are not in service at fires will not enter the buildings unless ordered, but remain convenient to the fire, equipped, and ready for orders.

### **Going to or from Fires.**

Order and decorum will be preserved when going to or from a fire or an alarm. To guard against collision and accident when proceeding to fires, the gongs will be struck when approaching street-crossings, turning corners, and approaching the fire grounds.

### **Riding to Fires.**

All drivers will be held responsible for any unnecessary overloading, and will in all cases judge of the ability of the horses, the condition of the streets, and the distance to travel. The men will mount and dismount as ordered by them. Officers will avail themselves of any opportunity to ride to

fires (excepting on engines), to the exclusion, if necessary, of the men.

### **Fire Grounds.**

All engines and hose companies responding to second or general alarms will connect, but will not lay their lines until they have reported to the officer in command at the fire for orders.

### **Stations.**

Stations of the department shall be open from 10 A. M., until 10 P. M., for visitors, and at any other time for inspection by members of the city government. On the Sabbath all stations must be closed; and it is made the duty of the engineer, or person in charge, to see that order and quiet are preserved. All work other than absolutely necessary will be omitted for the day. The permanent members of each station shall once in each week scrub the floors of their respective stations, and at all times keep them neat and clean. The members in charge of the several stations shall personally attend to the receiving of visitors, whether members of the city government, officers of the department, or citizens. Citizens visiting the stations shall be courteously treated, have reasonable questions answered, and any proper information given. All members detailed to sleep in the stations must be in their quarters at the time stated for closing the station, unless otherwise excused, and all other persons must leave at that time.

### **Drill.**

Until further notice the truck company will drill once each month, from May 1 to Oct. 1, and all other companies at such times as may be ordered by the Chief of Department.

**Conduct.**

All members of the department are strictly required in their intercourse with each other, social or official, to observe a courteous demeanor ; and officers or men, in addressing each other, will do so in a respectful manner. While on duty at fires, the greatest degree of silence, compatible with a proper discharge of duty will be required. No profane or ungentlemanly language or disorderly conduct, will be allowed on the part of any officer or member of the department when on duty.

No spirituous or malt liquors will be allowed in any station of the department or at any fire. If any member shall enter any station of the department intoxicated, or become intoxicated at a fire, he shall be subject to dismissal. No gambling of any kind will be allowed in any station of the department.

## GENERAL RULES.

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### **Rule 1.**

No driver of engine, hose, hook-and-ladder truck, or other vehicle, shall drive over any line of hose if it can be avoided.

### **Rule 2.**

No company will be allowed to take its apparatus from their quarters, except in case of fire, without consent of the Chief of Department.

### **Rule 3.**

The hose must be changed on reels once in four weeks, unless otherwise ordered by the Chief of Department, for which purpose the foreman will warn the members of his company detailed for this purpose ; and any member absent, unless excused, will be fined the same amount as for absence from fires.

### **Rule 4.**

Any member permanently employed, who refuses or neglects to pay any just debt contracted during his connection with the department, it shall be deemed sufficient cause for suspension or discharge.

**Rule 5.**

No permanent officer or member of the department shall attend a caucus or political convention as a delegate, distribute tickets at any election, or take any part whatever in political matters than to exercise a right of suffrage.

**Rule 6.**

All members of the department will be required to address officers by their respective titles when on duty.

**Rule 7.**

When any member shall leave the department, he shall thereupon return his badge, key, and copy of rules and regulations, in good condition, to the foreman of his company, who shall immediately notify the Chief of Department; and any member failing so to do shall have the amount deducted from his pay.

**Rule 8.**

No balls, parties, or social gatherings of any description shall be held in any building in charge of the department, except on permission from the Chief of Department.

**Rule 9.**

No property belonging to the city will be loaned for any purpose whatever, except upon written order of the Chief of Department.

**Rule 10.**

No hoseman or truckman at call shall be entitled to pay for less than fifteen days' service. All appointments shall, as far as practicable, to be made to date from the first or fifteenth day of each month.

**Rule 11.**

In the use of hydrants all members of the department are instructed to use great care in the opening and closing of the same, and to see that each cap is properly adjusted before leaving. The first company connecting with a hydrant in case of fire will leave one member in charge of the same; should a second company or line desire connection, it will not be made until the line is complete to the fire, and orders given for water. Exceptions to this are ordered for engines, which will be given immediate connection (if ordered into service), and the hydrant left in charge of the engineer.

**Rule 12.**

Officers of companies, hosemen, and laddermen will wear their fire-hats when on duty.

*Approved by Board of Mayor and Aldermen, April 19, 1880.*

Attest: EDWIN O. CHILDS, *Clerk.*

H. L. BIXBY, *Chief Fire Department.*





BILL OF DRESS FOR THE UNIFORMED FORCE  
OF THE FIRE DEPARTMENT OF THE  
CITY OF NEWTON.

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**Fire Cap.**

*For Chief of Department.*—A white leather cap with eight cones, having a white leather stitched front depending from a gilt eagle head, and attached to the front of the cap, with the word “Chief” in black letters stitched on white ground, with “Fire Department” in the center, and the word “Newton” at the bottom.

*For Assistant Chief of Department.*—Same as for Chief of the Department, except that the rim and cape will be black on both sides and lettered “Ass’t Chief, Fire Department, Newton.”

*For Officers Engine and Hose Companies.*—Same as for Chief of Department, except that it will be of black leather, and have a white leather stitched front, with the letters and figures cut out of it on a background of black patent leather.

*For Officers Truck Company.*—Same as for officers engine companies, except that the letters will be on red ground.

*For All Members Engine and Hose Companies.*—Same as for officers, except that the front will be of black patent leather, with letters on background of white patent leather.

*For Members Truck Companies.*—Same as for officers of truck companies, except that the fronts will be of red patent leather, with letters on background of white patent leather.

### Fatigue Caps.

*For Chief of Department.*—Of United States Navy pattern, made of dark blue cloth, pure indigo dye, with band one and one-half inches, and quarters one and three-quarters inches high, stiffened with hair-cloth sewed into the seam of top and quarters, the sides to be ventilated, a narrow welt around bottom and top seam of cap, the inner band to be of strong, serviceable leather, the visor to be plain, solid, black, patent leather, two inches wide, with rounded corners, the chin straps of black patent leather one-half inch wide, with slides of same material, straps to be fastened to cap on each side with small regulation button.

The insignia of rank to be placed on the quarters in the centre of the front, the lower part resting nearly on the upper edge of band.

*For Assistant Chief of Department.*—Same as for Chief of Department.

*For Engineers Steamers, Drivers, etc.*—Same as for Assistant Chief, but omitting insignia of rank, and substituting therefor a white metal badge, as per pattern at headquarters, to be fastened to the cap, with the lower end resting upon the upper lower edge of band.

For winter service, caps known as "Scotch Havelocks" may be substituted for the "Regulation Cap."

### Hats for Summer Wear.

*For Chief and Assistant Chief of Department.*—Light gray felt helmets, with black silk band one inch wide, rim bound with the same, with insignia on the front and just above the band, to be ventilated each side, the sweat-band to be of leather, one and one-half inches wide and ventilated.

*For All Other Members.*—Of brown Mackinac braided straw (braids about five-eighths of an inch wide); sides about three and one-half inches high, slightly tapering at crown,

with black ribbed-silk ribbon band one and three-quarters of an inch wide, tied in a single bow knot on left side, brim about two and one-quarter inches wide, bound with seven-eighths-inch black ribbon ; the sweat-band to be of leather about one and one-half inches wide, the bottom or crown to be lined with paper. The badge as prescribed above to be worn upon the ribbon in front.

### Coats.

*For Chief of Department.*—A double-breasted, close, fitting sack coat, made of dark blue cloth, pure indigo dye, cut to button close to the neck, with rolling collar, and to reach to a point midway between the hip-joint and the bend of the knee ; to have eight medium-sized regulation buttons on each breast, grouped in pairs ; the cuffs to be made to fit the wrists, and to be closed with three small regulation buttons ; a blind pocket on each breast, with plain flaps ; two inside breast pockets ; the sleeves to be cut so as to be conveniently worn inside the overcoat ; the coat to be lined with black Italian cloth, and the sleeves with linen. The prescribed insignia of rank to be placed in the end of the collar on each side.

*For Assistant Chief of Department.*—Same as for the Chief of the Department, except that there will be seven buttons placed equidistant, and the insignia of rank as prescribed.

*For All Other Members.*—The coat will be single-breasted with six medium-sized buttons.

*For Summer Wear.*—A coat may be worn of dark blue flannel, indigo dye, and in all other respects as above, but without lining.

### Overcoats.

*For Chief of Department.*—A double-breasted frock coat, with rolling collar, lap seams, of best heavy, dark blue cloth,

pure indigo dye, in length to reach below the knee, to button close up to the neck, with eight large regulation buttons on each breast, grouped in pairs, three on each skirt behind and three of small size on each sleeve at cuff, the skirts to be open behind, blind pockets on each skirt inside, with flaps, also on breasts, and two inside breast pockets.

The skirts to be lined with black Italian cloth, and back with red twilled flannel, sleeves with linen.

*For Assistant Chief of Department*.—Same as for Chief of Department, except that there shall be seven large regulation buttons on each breast, placed equidistant.

*For All Other Members*.—Same as for Chief of Department, except that the seams will be plain, with six large regulation buttons on each breast, placed equidistant.

### **Vests.**

*For Chief of Department*.—A single-breasted vest made of same material as coat, without collar, and to button with eight small regulation buttons, grouped in pairs; inside to be lined with light-colored silesia; back to be made of black twilled silesia.

*For Assistant Chief of Department*.—Same as for Chief of Department, except that there shall be seven small regulation buttons, placed equidistant.

*For All Other Members*.—Same as for Chief of Department, except that there shall be six small regulation buttons, placed equidistant.

*For Summer Wear*.—A vest may be worn made of light cloth or flannel, dark blue, indigo dye, and in all other respects as above described.

### **Trousers.**

*For Chief of Department*.—To be made of same material as the coat, with a lap seam; to be cut to fit close around

the waist, but loosely around the hams and legs to admit of their free use.

*For All Other Officers and Members.*—Same as for Chief of Department, except that they will be made with plain seam.

*For Summer Wear.*—Trousers may be made of lighter material (dark blue), in the manner prescribed above.

### Shirt.

*For Chief and Assistant Chief of Department.*—White linen or muslin, with rolling or standing-collar.

*For All Other Members.*—To be of white cotton or linen, with rolling collar.

### Cravat.

*For All Officers and Members.*—A small necktie of black silk to pass once around the neck, and tie with a double bow and flat knot in front, the ends to extend not more than three inches from the knot.

### Change of Clothing.

Summer clothing will be worn from June 15, to September 15, inclusive, unless otherwise ordered from headquarters.

### Insignia of Rank.

*For Chief of Department.*—Embroidered upon dark blue cloth in silver, five trumpets, measuring one and five-sixteenths inches, each crossed with bells outward and projecting beyond mouth pieces, so as to form a design one and one-half inches in diameter.

*For Assistant Chief of Department.*—Same as for Chief of Department, except that there shall be three trumpets,

measuring one and one-half inches, each crossed with bells downward.

*For All Other Members.*—A white metal badge of the prescribed pattern.

### **Coat Badge.**

*For Chief of Department.*—A gilt badge from the department die, as follows: In semi-circle at the top the words, "Chief Fire Department"; in the centre, and resting on a ladder, the city seal; beneath, over crossed trumpets, the word "Newton"; below this the monogram "F. D."; the whole badge to be two and one-half inches long by one and one-half inches wide, to be fastened with a pin and improved catch.

*For Assistant Chief of Department.*—Same as for Chief of Department, except to prefix the word "Assistant."

*For All Members Engine Companies.*—Same as for Chief of Department, except that the badge will be of white metal, with "Newton Fire Department" at the top, below the seal the word "Engine," and beneath this the registered number.

*For All Members Truck and Hose Companies.*—Same as for engine companies, except that "Truck" and "Hose" will be substituted respectively above the registered number.

### **Buttons.**

*For All Officers and Members.*—To be of white metal of the following description: For overcoat (except the cuffs) to be round, one inch in diameter, with convex roughened face, having the initials "F. D." in block letters one-quarter of an inch high in the centre, the words "City of" at the top, and "Newton" at the bottom, in block letters one-eighth of an inch high, near and parallel to the rim around the button, which rim is to be bright, and about one-sixteenth of an inch wide, the button to be attached to the coat by means of an eye of white metal wire securely fastened to it.



For the coat (except the cuffs) same as for overcoat, except that it is to be three-quarters of an inch in diameter, with the dimensions of all the parts described proportionally reduced in size.

For vests, cuffs of coat, and fatigue cap, same as for overcoat, except that it is to be five-sixteenths of an inch in diameter, with the dimensions of all parts described proportionally reduced in size.

All officers and members will be held responsible for the safe keeping, proper use, and return of the articles above enumerated, and they are liable to the following penalties for the loss of either of them: For the loss of a coat badge, \$3.50; for the loss of a cap badge, \$1.00; for the loss of a fire hat, \$4.50; for the loss of buttons, \$0.05 each. No part of the uniform prescribed in this order is to be loaned to any person, whether in or out of the department, or used for any but legitimate purposes of the same. This order is imperative.

All members shall wear the uniform prescribed in the above order when on duty, except while cleaning apparatus, quarters, etc., when old clothing may be worn. The purpose of this regulation is, that the officers and members of the department may at all times, except when in the performance of necessary labor in quarters, appear in proper dress. No officer or member in uniform shall smoke in the streets, or public places, or upon the apparatus floor, where smoking rooms are provided. Officers and men, when upon leave of absence, must wear the uniform entire, or no part of it. Whenever the uniform is worn, it must be in an unsoiled condition, coat buttoned to the neck, buttons, badges, and boots properly polished, and their persons at all times neatly and tidily dressed. While actually wearing the overcoat, the under coat may be dispensed with, and a cardigan jacket substituted, but the overcoat must be buttoned at all times

when on the street or on duty, and no part of the uniform will be laid aside until bedtime.

The Assistant Chief of Department shall inspect all uniforms or parts of uniforms before they are worn, and reject all found not in conformity with the provisions of this order.

To take effect on or before September 1, 1887.

*In the Board of Mayor and Aldermen, April 4, 1887.*

*Adopted.*

I. F. KINGSBURY, *Clerk.*

HENRY L. BIXBY, *Chief Fire Department.*



## BUILDING DEPARTMENT ORDINANCES.

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### ORDINANCE XXIV.

#### Buildings.

SECTION 1. No person shall erect, alter, Permit. rebuild, or essentially change any building or any part thereof, for any purpose other than a dwelling-house, without first obtaining in writing a permit from the board of aldermen. The application for such permit shall specify the location and size of said building, the material of which it is to be constructed, and the use for which it is intended.

SECT. 2. No person shall use any building, or part thereof, for any purpose rendering said building or buildings adjacent thereto, hazardous, unsafe, or liable to be destroyed by fire, or dangerous to persons or property, without first obtaining a permit, as named in Section 1.

SECT. 3. All chimneys hereafter erected Chimneys and brick flues. shall be built of brick, stone, or other fire-proof, non-conducting material. All brick flues shall be smoothly plastered inside with mortar from top to bottom, and outside below the roofing. In no case shall chimneys rest upon any flooring without a footing of masonry or iron, supported

by iron beams, having a secure bearing on iron at either end.

Hearths of fire-places or grates shall be laid upon brick or other trimmer arches, or upon bars of iron supporting a bed of brick-work.

No wood-work of any kind shall be placed at a less distance than one inch from the outside brick-work of any flue, and in no case shall a nail be driven into the masonry of any flue.

No wood-work shall be placed at a less distance than one inch from any tin or other metal flue or flues, pipe or pipes, used or intended to be used to convey heated air or steam in any building, unless such flues or pipes be cased with metal, leaving a free circulation of air all around the same.

Smoke-pipe.

No smoke-pipe shall pass through any stud or wooden partitions, whether plastered or not, without being guarded either by a double collar of metal, with at least four inches air space and holes for ventilation, or by a soap-stone ring not less than three inches in thickness and extending through the partition.

SECT. 4. Whoever violates any provision of the preceding sections of this ordinance shall be liable to a fine not exceeding one hundred dollars.

## ORDINANCE XXII.

### Gunpowder and Other Explosive Compounds.

Pub. Stats.,  
chap. 103, §56.

SECTION 1. No person shall keep or deposit any gunpowder within the city unless it is well secured in tight casks or canisters.

No person shall keep or deposit more than fifty pounds of gunpowder in any shop, store, or other building which is within the distance of twenty-five rods from any other building or wharf; no person shall keep or deposit more than twenty-five pounds of gunpowder in any shop, store, or other building which is within the distance of ten rods from any other building; and no person shall keep or deposit more than one pound of gunpowder in any shop, store, or other building, which is within ten rods of any other building unless it is well secured in copper, tin, or brass canisters holding not exceeding five pounds each, and closely covered with copper, brass, or tin covers.

No person to keep or deposit gunpowder, unless, etc.

Limit of Amount.

SECT. 2. Licenses may be granted by the mayor and aldermen for the retailing of gunpowder, in form substantially as follows: to wit,—

Licenses.

*Gunpowder License No.*

LICENSE TO SELL GUNPOWDER IN THE CITY OF  
NEWTON.

This certifies that \_\_\_\_\_ of Newton is (or are) hereby licensed and authorized to sell gunpowder at retail at \_\_\_\_\_ on \_\_\_\_\_ street, being \_\_\_\_\_ place of business in said city, for one year from date hereof, at noon, provided \_\_\_\_\_ shall duly conform to the laws and to the provisions of the ordinance printed hereon. And in case the said \_\_\_\_\_ shall at any time during the term aforesaid infringe the laws or any of the provisions of said ordinance, then this license shall be void.

Dated at Newton this \_\_\_\_\_ day of \_\_\_\_\_, in the year of our Lord one thousand eight hundred and \_\_\_\_\_

No person shall sell any gunpowder within the city without such license. Every such li-

Sales without license prohibited.

License may  
be rescinded.

cense shall be in force one year from the date thereof, provided that any such license may be rescinded by the mayor and aldermen, at their discretion.

Sign.

SECT. 3. Every person so licensed shall keep a sign over the outside of the principal entrance from the street of the building in which powder is kept, on which shall be printed in capitals the words, "Licensed to Keep and Sell Gunpowder."

City Clerk to  
keep record of  
licenses, etc.  
Place not to be  
changed.

SECT. 4. The city clerk shall keep a record of all such licenses, and of the places designated therein; which places shall not be changed unless by consent of the mayor and aldermen in writing. Every person who receives a license shall sign his name to a copy of the rules prescribed in this ordinance, as evidence of his assent thereto.

Exceptions.

SECT. 5. The provisions of this ordinance shall not apply or extend to the keeping or storing of metallic cartridges in fire-proof magazines, nor to cartridge manufacturers, so long as they shall keep their powder in canisters, as prescribed in Section 4, and in fire-proof magazines, located and built to the satisfaction of the mayor and aldermen, and so long as such manufacturers allow no more than one hundred pounds of gunpowder in any magazine, or five pounds of gunpowder not made into cartridges, to be in any one work-shop at any one time.

Keeping in  
magazines.

Pub. Stats.,  
chap. 102, § 59,  
etc.

SECT. 6. No person, except on military duty in the public service of the United States or of this Commonwealth, shall keep, have, or possess, in any building, place, vehicle, ship, or other vessel within one rod of a dwelling-house,

any explosive compound other than gunpowder, in quantity exceeding one-fifth of a pound.

SECT. 7. The mayor and aldermen may license any suitable person to keep, store, and sell such compound, in according with the foregoing provisions.

SECT. 8. Any member of the police or of the Fire Department may enter the building or premises of any person so licensed, to make the examination provided by law, at his discretion; and on alarm of fire may cause such compound there deposited to be removed or destroyed, as the case may require.

SECT. 9. Whoever violates any provision of this ordinance shall be liable to a fine not exceeding twenty dollars.



STATUTE AND ORDINANCE REGULATING SUPERVISION OF WIRES OVER STREETS AND BUILDINGS IN CITIES.

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[CHAP. 404; ACTS 1890.]

**An Act Relating to the Regulation and Supervision of Wires Over Streets or Buildings in Cities.**

*Be it Enacted, etc., as Follows :*

SECTION 1. Every person or corporation, private or municipal, owning or operating a line of wires over streets or buildings in a city, shall use only wires that are suitable and strong ; shall suitably and safely attach them to strong and sufficient supports, and insulate them at all points of attachment ; shall remove all wires abandoned for use ; shall suitably insulate every wire where it enters a building, and, if such wire is other than a wire designed to carry an electric light or power current, shall attach to it at suitable and convenient points in the circuit, calculating to prevent danger from fire and near the points of entering the building, an appliance calculated to prevent at all times a current of electricity of such intensity or volume as to be capable of injuring electrical instruments or causing fire from entering the building by means of such wire, beyond the point at which such appliance is attached, and shall suitably insulate every wire within a building when such wire is designed to carry an electric light current.

SECT. 2. Every such person and corporation shall, in the several cities, within six months after the appointment of the officer hereinafter provided for, affix at the points of support at which any such wire or cable containing wires is attached, a tag or mark distinctly designating the owner or user of such wire or cable. No such tag or mark shall be required for the wires of a street railway company used for the transmission of motive power, nor for the protection or support of such wires.

SECT. 3. Every city shall, by ordinance, designate or provide for the appointment of an officer who shall supervise every wire over streets or buildings in such city, and every wire within a building when such wire is designed to carry an electric light or power current; shall notify the person or corporation owning or operating any such wire whenever its attachments, insulation, supports or appliances are unsuitable or unsafe, or the tags or marks thereof are insufficient or illegible, and shall, at the expense of the city, remove every wire abandoned for use, and every wire which after the six months aforesaid shall be unprovided with a tag or mark, as hereinbefore required, such expense to be repaid by the owner of such wire; and shall see that all laws, ordinances and regulations relating to such wires are strictly enforced.

SECT. 4. Any city may recover, in an action of contract, of the person or corporation owning any such wire as is hereinbefore described, any expense which it may have incurred for any removal thereof.

SECT. 5. Any court having equity jurisdiction or any justice thereof, in term time or vacation, may, on a petition of the officer designated or appointed as aforesaid, by any suitable process or decree in equity enforce the provisions of this act, and may, on such petition, issue an injunction or other suitable process to restrain the use or maintenance, or to cause the removal, of any wire, post or other support erected, maintained or used in violation of this act.



SECT. 6. This act shall take effect upon its passage.  
Approved June 11, 1890.

**Ordinance Relating to the Supervision and Regulation of  
Wires.**

*Be it Ordained by the City Council of the City of Newton,  
as follows, viz. :*

SECTION 1. The office of Inspector of Wires is hereby created.

SECT. 2. Said Inspector shall supervise every wire or cable over streets or buildings, and every wire within a building when such wire is designed to carry an electric light or power current; shall notify the person or corporation owning or operating any such wire or cable whenever its attachments, insulation, supports or appliances are unsuitable or unsafe, or any tags or marks thereof, hereinafter described are insufficient and illegible; and shall remove every wire abandoned for use, and every wire except the wire of a street-railway company used for the transmission of its motive power, or for the protection or support of such wires, which, after the expiration of six months from the date of his appointment, shall be unprovided with a tag or mark distinctly designating the owner or user of such wire or cable; shall see that all statutes, ordinances, and regulations, relating to his duties, and to the location, erection, supports, maintenance, insulation, and removal of wires or cables in, over, or under streets or buildings are strictly complied with and enforced.

SECT. 3. Said Inspector, shall, as soon as convenient after his appointment, make and thereafter keep in his office, a map showing the location of all wires over, in, or laid under the streets and other public places and over buildings of the said city, and a record of the names of the owner or owners of each and all said wires.

SECT. 4. Said Inspector, shall, when so required by the mayor or aldermen, examine every application for the erection of any wires, or poles or posts for the support thereof, in or over any street or public place or for conduits under any street or public place for such wire, and shall report to them any facts which in his opinion bear upon the question of granting or refusing to grant such application.

SECT. 5. Said Inspector shall have the charge and control of the erection and maintainence of all wires owned by the city, including the fire-alarm telegraph and police electric signal and telephonic systems, and of the posts and other supports therefor now erected or owned, or hereafter erected by the city. He shall purchase and set up all the wires, posts, supports, and all the dynamos, machinery, and other electrical appliances required by the city in all departments, and shall see that all the said wires, posts, machinery and appliances are maintained and kept at all times in good order and condition.

SECT. 6. No telegraph, telephone, nor electric line shall be erected nor maintained until the owner thereof shall file with the mayor and aldermen a written agreement accepting and promising to abide by and perform all the conditions and provisions of this ordinance, and all orders, rules, regulations, and amendmends hereafter made in addition thereto.

SECT. 7. All writings and authority for the erection of telegraph, telephone, and electric lines shall be subject to the right of the mayor and aldermen to permit other lines upon the same posts; but this shall not prevent a reasonable compensation therefor.

SECT. 8. On streets where curbstones are set, all posts shall be erected in the sidewalk, within and adjoining the curbstones; and where there are no curbstones, the posts shall be so erected as not to interfere with the gutters. No post

shall be erected within fifteen feet of any hydrant, nor so as interfere with any water-pipe, shade-tree, driveway or intersection of street.

SECT. 9. All posts for telegraph, telephone and electric lines shall be straight, properly trimmed and painted, shall not be less than twenty feet in height from the ground, shall be of iron, cedar, chestnut, or hard pine, and, if of wood, not less than six inches in diameter at the smaller end, and eight to ten inches in diameter at the ground. Such posts shall be properly set in the ground to the depth of at least five feet. Wherever any wire shall cross any street or way, it shall be at a height not less than twenty-five feet above such street or way, and be protected by guards, and, where practicable, cross at right angles.

SECT. 10. All wires for the transmission of electricity for lighting and motive-power, excepting the wires used by a street-railway company for the transmission of its motive power, shall at all times be so insulated as to resist abrasion and heat, and be impervious to water. When placed above the surface of the ground, such wires shall be suspended upon posts; and, wherever in proximity to other wires, dead guard-wires must be placed so as to prevent any possibility of contact with foreign wires. This rule must be applied to both arc and incandescent wires. When any such wire shall be broken, or its insulation become imperfect, the electric current shall forthwith be discontinued, and the wire not used until properly repaired and insulated.

SECT. 11. Wires for the transmission of electricity for lighting and motive-power shall be secured to insulating fastenings of glass, hard rubber, or other approved insulating material. All tie-wire shall be insulating in the same manner as conducting wire. All joints in wire shall be securely made, and where possible soldered, and wrapped with insulating material that will resist heat and abrasion,

and be impervious to water. Continuous wires, without joints, shall be used as far as possible.

SECT. 12. Wires for the transmission of electricity for lighting and motive-power, passing through the exterior walls of buildings, shall be firmly incased in substantial tubes of non-conducting material not liable to absorb moisture, and so placed as to prevent water from entering the building along the wire. Outgoing and returning wires for arc-lights shall enter and leave buildings at points one foot at least from each other; those for incandescent lights shall so enter and leave buildings at points at least three inches from each other. In running along outside walls, cornices, and the like, all such wires shall be rigidly fastened by non-conducting fastenings; and where carried over or attached to buildings, must be at least seven feet above the highest point of flat roofs, and one and a half feet above pitch roofs, and placed so as to avoid ladders of Fire Departments. They should not be run over or attached to buildings, other than those desiring light and power. In the interior of buildings, all such wires shall be so placed as not to come in contact with iron pipes, posts nor girders, nor in any way so as to form other circuits or ground connections. In passing through floors, or partitions, or walls, they shall be surrounded by an insulating tube of substantial material, to protect them from injury by rats and mice. All inside wires must be so placed as to be easily and thoroughly inspected. Whenever such wires enter a building, a cut-out of simple form and construction shall be provided, and properly attached as near as possible to such entrance.

SECT. 13. The frame and exposed parts of all arc-lamps shall be insulated from the circuit. All such lamps shall be provided with a separate hand-switch, and also with an automatic switch which will close the circuit whenever the carbons do not approach each other, or the resistance becomes excessive. Arc-lamps must be provided with some

arrangement to prevent the lower carbon from falling out, in case the lamp does not hold them securely. For inside use, the globes must rest in a tight stand, that no particles of melted copper or heated carbon can escape. Converters on alternating circuits must be outside of buildings, and must be placed high enough from roof to prevent possible injury to firemen.

SECT. 14. For incandescent lamps, the conducting wire leading to each building and branch circuit shall be provided with an automatic switch or cut-out, or its equivalent, capable of protecting the system from injury by an excessive current of electricity.

SECT. 15. All light and power circuits shall be entirely of metal. No gas, water, nor steam pipe, nor the earth, shall be used as a part of any such circuit.

SECT. 16. In case of fire, the Chief of the Fire Department shall have full power and authority to order and cause any electric wires to be cut or removed, and electric currents discontinued until the fire is extinguished.

SECT. 17. No wire for the transmission of electricity for lighting or motive power shall be attached to posts of the fire-alarm telegraph nor to the posts of any telegraph or telephone company upon which fire-alarm wires are placed, except by permission of the Inspector of Wires.

SECT. 18. Plans showing the proposed location of the wires and posts of any new circuit, shall be filed with and be subject to the approval of the Inspector of Wires.

SECT. 19. The ordinance relative to Telegraph, Telephone and Electric Light Lines, passed to be ordained and approved, December 27, 1886, be and is hereby repealed.



## STATISTICS.

**From January 1, 1890, to December 31, 1890.**

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Total alarms, (Bell)	41
Total alarms, (Verbal)	10
Total alarms, (Telephone)	2
Total alarms, (Out of City)	1
Grand total, (All alarms)	54
Loss on Real Estate,	\$23,321 00
Insurance paid on same,	23,172 00
Loss on personal property,	20,970 00
Insurance paid on same,	18,763 00
Loss in excess of insurance,	2,291 00
Total insurance at risk on same,	115,000 00
Assessed value Real Estate, as above,	100,000 00
Assessed value, Real and Personal Property (in fire limits),	37,000,000 00
Reservoir capacity, (gallons)	15,000,000
Pumping engines capacity (gallons daily)	6,000,000
Total number hydrants,	642
Total area of fire limits,	sq. miles 20





CITY OF NEWTON.

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ANNUAL REPORT

OF THE

CITY ENGINEER,

FOR THE YEAR 1890.



NEWTON UPPER FALLS:  
FANNING PRINTING CO.  
1891.



OFFICERS OF CONTROLLING BOARDS AND  
COMMITTEES.

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**Chief Executive Officer (ex officio).**

HIS HONOR THE MAYOR, HEMAN M. BURR.

**Joint Standing Committee on Highways.**

ALDERMAN WILLIAM F. HARBACH, *Chairman*.

**Water Board.**

FRANCIS A. DEWSON, *President*.

**Joint Special Committee on Sewerage.**

ALDERMAN WILLIAM F. HARBACH, *Chairman*.

**Joint Standing Committee on Assessors' Department.**

ALDERMAN WILLIAM F. HARBACH, *Chairman*.

**Joint Standing Committee on Public Property.**

ALDERMAN LEWIS E. COFFIN, *Chairman*.

**Board of Health.**

HIS HONOR THE MAYOR, HEMAN M. BURR, *President (ex-officio)*.

**Joint Standing Committee on Public Parks, Squares and  
Burial Grounds.**

ALDERMAN GEORGE PETTEE, *Chairman*.



## CITY ENGINEER'S DEPARTMENT.

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### **City Engineer.**

ALBERT F. NOYES.

### **Principal Assistant Engineers.**

FRED. H. BARNES.

HENRY D. WOODS.

### **Assistant Engineers.**

I. W. HASTINGS.

WILLIAM P. MORSE.

DAVID HINCKLEY.

### **Transitmen and Levellers.**

FRANK W. UPHAM.

HENRY E. D. JEFFERSON.

### **Rodmen.**

G. A. HARRIS.    DANA LIBBEY.    CHARLES TEMPERLEY.

H. H. APPLIN.    ERNEST HARVEY.    HERVEY A. HANSCOM.

GEORGE O. HASTINGS.

### **Draughtsmen.**

ALFRED O. DOANE.

FRED. C. MOORE.

### **Stenographer.**

STELLA J. VOSE.



# REPORT.

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CITY ENGINEER'S OFFICE, CITY HALL, }  
WEST NEWTON, MASS., Dec. 31st, 1890. }

*To the Honorable City Council :*

GENTLEMEN.—In compliance with Section 5 of Ordinance No. 9, I herewith respectfully submit the annual report of the City Engineer's Department for the year 1890.

Amount appropriation for the year, . . .	\$8,050 00
Amount of additional appropriation, . . .	850 00
<hr/>	
Total appropriation, . . . . .	\$8,900 00
Amount expended, . . . . .	8,892 10
<hr/>	
Balance unexpended, . . . . .	\$7 90

## Classification of Expenditures.

For salaries of City Engineer, assistants, draughtsmen, rodmen, and stenographer, .	\$6,784 95
For car fares and other incidental office ex- penses, . . . . .	337 53
For exchange of horses, . . . . .	275 00
For care and keeping of horses, wagons, etc., .	748 99
For instruments and repairs, . . . . .	585 44
For drawing paper and other supplies, . . .	160 19
<hr/>	
Total amount, . . . . .	\$8,892 10

The item of salaries of City Engineer and assistants may be divided as follows :

For defining street lines ; making surveys and maps ; the examination of titles and draughting of reports, orders and releases for street widening, acceptance, and extensions ; office records ; defining and establishing proposed grades of streets ; preparing specifications for the construction of new streets ; surveys, plans, profiles and estimates for proposed work on highways, and for all work relating to highways, . . . . .	\$1,690 82
For clerical work in keeping highway accounts, . . . . .	577 88
For establishing lines and grades for extension of water pipe, locating and measuring service pipes, and for all work relating to water works, . . . . .	614 52
For making surveys and maps ; the examination of titles, establishing ownership lines, and draughting orders for taking of lands upon Charles River, in Needham and Newton ; making plans, diagrams, specifications, surveys and levels for the construction of the new filtering conduit ; superintending the construction of the same, making plans, diagrams, specifications and contract for new pumping engine and boilers, and for all work relating to additional water supply, . . . . .	1,106 28
<i>Amount carried forward,</i>	<hr/> \$3,989 50



<i>Amount brought forward,</i>	\$3,989 50
For making surveys and contour maps of land taken for a reservoir upon Waban Hill ; the examination of titles for the same, making plans, diagrams, estimates, calculations, specifications and contract and superintending the construction of the covered reservoir, and for all work relating to the covered reservoir upon Waban Hill,	202 10
For making surveys, maps, profiles, estimates, designs, calculations and reports and for all work relating to the designing of a system of sewers, . . . . .	948 76
For making surveys, plans, calculations and for all work relating to the Assessors' Department, . . . . .	503 88
For defining the lines and grades for the construction of drains and culverts, making preliminary surveys, plans, profiles, diagrams, estimates, calculations and all work relating to drains, . . . . .	448 36
For copying all Newton plans at registry of deeds and indexing the same ; and for all indexing of other plans, deeds, field work, etc., . . . . .	193 46
For defining the lines, surveys and plans of city property, and for all work under the direction of the Joint Standing Committee on Public Property, . . . . .	188 02
For plans, estimates, reports, correspondence, superintendence of work as ordered, and for all work relating to Board of Health, .	144 24
<i>Amount carried forward,</i>	\$6,618 32

<i>Amount brought forward,</i>	\$6,618 32
For defining the lines, grading, making surveys and plans of the various present and proposed parks; and for all work under the direction of the Joint Standing Committee on Public Parks, Squares and Burial Grounds,	96 99
For surveys and plans for numbering the houses on the various streets of the city, and for all work relating to the same, . . .	69 64
Total amount, . . . . .	<hr/> \$6,784 95

Surveys have been made of the whole or part of sixty-four streets, covering a length of eighteen and twenty-six hundredths miles. Surveys have been made of one and sixteen hundredths miles of location of the Boston & Albany railroad; six and fifteen hundredths miles of the Charles river; and eighteen and fifty-four hundredths miles of division lines, making a total of forty-four and eleven hundredths miles of survey lines. Three hundred and sixty-eight plans, profiles and tracings have been made. Levels have been taken over the whole or a part of one hundred and thirty-one streets or brooks, a total length of twenty-nine and twenty-eight hundredths miles. Lines have been established on sixty-seven streets, and grades on ninety-eight streets. The total length of grades given was ten and five hundredths miles. The total number of plans, profiles, tracings, etc., now in the office is 3,621.

The minimum number of assistants employed during the past year is ten, average number seventeen, and the maximum number nineteen.

Upon the following named streets, plans and profiles have been made, lines and grades defined; titles and boundaries of the abutting estates examined; reports, orders and releases drawn; and said streets have been laid out and accepted by the City Council.

**Streets Accepted in 1890.**

STREET.	From	To	Width in Feet.	Length in Feet.
Bacon, . . .	Washington St. .	Pearl St. . . .	30	418
*Beach, . . .	At Court St. . .			
†Chestnut, . . .	Boylston St. . .	Circuit Railroad.	41.25	2,566
Clyde, . . .	Walnut St. . .	Gay St. . . .	40	1,081
Hunnewell Ave.,	Washington St. .	Hunnewell Ter. .	48	225
Hunnewell Ave.,	Hunnewell Ter. .	Copley St. . .	40	911
Hunnewell Ter.,	St. James St. . .	Hunnewell Ave. .	48	917
Total, . . . .		1.16 miles, . .	or	6,118

\* Widened. † Re-located.

The routine work of the office, the system of accounts, the copying and indexing of all Newton plans at the registry of deeds, also all private plans attainable has been continued as outlined in previous reports.

Surveys were made, levels taken and contour maps and plans of the playground at Newton Centre made, also such consultations as the committee of the improvement society desired, have been rendered.

Under the direction of this department, a contour map of the almshouse property on Beacon street, together with the adjacent properties upon the south side of Moffatt's hill, prepared by McClintock and Woodfall, civil engineers of Boston, and this plan has been submitted by the Committee on Public Property to Mr. F. L. Olmstead the well known landscape architect for a study of the most judicious and artistic development.

A survey and plan were made of the new almshouse property on Winchester street, also a contour map for determining the location of the new buildings.

Batter boards, levels and other information have been furnished for the engine house at Newton Highlands, the

new schoolhouse at Waban and the police patrol station at West Newton, also upon a number of minor matters.

The City Engineer has attended to such consultation work as has been requested of him by the Board of Health, and has furnished the Board with estimates, reports, plans, etc., and has superintended such work as has been ordered.

The low land lying in the rear of the corner of Auburn-dale avenue, River and Elm streets, which has been a source of complaint for a long time was drained by opening and lowering the ditch crossing Oak avenue, and lowering the ditch in the rear of the property on Webster park. This work was done by order of the Board of Health. At request of the Board estimates were made for draining the lands in the rear of the old cemetery at West Newton, both through Cherry street and through Henshaw street. An appropriate estimate has been made for this work, and it will be carried out next year.

Although the City Engineer has numbered the houses upon a large number of streets, and especially in the postal district of Newton, in accordance with the order of the Board of Aldermen, complaint has been received from the postal authorities that but a small proportion of the citizens have availed themselves of the system. This department will designate the proper numbers to any one making application therefor. A more general compliance with the ordinance would greatly aid not only strangers, but the postal delivery.

Surveys have been made, levels taken and lines and grades for the laying of water mains have been established on fifty streets, covering a total length of 18,280 feet. There have been located 272 services and renewals laid during the year.

A more extensive description of the work done upon the highways, water works, sewerage system and block system of plans for the Assessors will appear later under their respective heads.

## HIGHWAY DEPARTMENT.

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### **Highway Surveyors and Joint Standing Committee on Highways.**

ALDERMAN WILLIAM F. HARBACH, *Chairman.*

ALDERMAN GEORGE PETTEE.

ALDERMAN LEWIS E. COFFIN.

COUNCILMAN ARTHUR F. LUKE.

COUNCILMAN WILLIAM C. BATES.

COUNCILMAN GEORGE F. CHURCHILL.

COUNCILMAN FRANCIS E. PORTER.

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### **EXECUTIVE OFFICERS.**

#### **Superintendent of Streets.**

\*WILLIAM E. FULLER, *to August 27th, 1890.*

CHARLES W. ROSS, *from Dec. 8th, 1890.*

#### **Assistant Superintendents of Streets.**

GEORGE E. STUART, WARDS 1, 2 and 7.

†JOHN J. WARE, WARDS 3 AND 4, *to Sept 27th, 1890.*

CHARLES L. BERRY, WARDS 3 AND 4, *from Dec. 31, 1890.*

CHARLES A. PECK, WARDS 5 AND 6.

#### **City Engineer.**

ALBERT F. NOYES.

\* Deceased. † Resigned.



## HIGHWAYS.

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During the year the Joint Standing Committee on Highways has had under its management the repairs, building and rebuilding of streets, drains, culverts, bridges, sidewalks, etc., the gravel lands and the watering of the streets.

The following changes were made in the membership of the Highway Surveyors and the Joint Standing Committee on Highways: Alderman Coffin and Councilmen Bates, Churchill and Porter succeeded Alderman Chadwick and Councilmen Moody, Rice and Hamblen, retired.

After a short and sudden illness, William E. Fuller, superintendent of streets, died August 27th, 1890, thus closing a long term of faithful, efficient and conscientious service to the city as superintendent and previous thereto as assistant superintendent. Mr. Charles W. Ross, formerly assistant superintendent at Newton Cemetery was appointed to fill the vacancy, December 8th, 1890.

While the vacancy existed the work of the superintendent was conducted by the chairman, Alderman William H. Harbach and the City Engineer. During the latter part of the year, John J. Ware, assistant superintendent of streets in charge of Wards 3 and 4, was confined to his house by sickness, and the position was temporarily filled by Thomas Stuart. Mr. Ware's resignation was presented September 27th, and December 31st Mr. Charles L. Berry was appointed as his successor. Mr. Ware was highway commis-



sioner from the time the highway department was organized under the town government up to the establishment of the city government, and has held the position of assistant superintendent since that time.

The machinery of the department has been under the care of the engineer, William Kent.

A ring horse roller, weighing 4,300 pounds, has been purchased for light work.

For a long time it has been necessary to maintain a night watchman at the Murray street ledge, to protect the large amount of property belonging to the city located there, and it was decided as a matter of economy to build a dwelling house at the ledge. This house was built by S. D. Garey & English, at an expense of \$1,200, and is occupied by the engineer, Mr. Kent.

Curbing was set upon both sides of Richardson street for a greater portion of its length; the sidewalks were also repaired. This work and the work upon the roadbed leaves this street in fine condition.

The work upon the Morse Field drainage was commenced early in the year, and the drains were laid in Emerson, Pearl, North School, Thornton, Waban, Hovey and Centre streets, thereby completing the long-needed drainage of the accepted streets of this district.

The drainage of Waverley avenue was brought through Church street to the Eldridge street drain, and a branch laid through the west side of Kenrick park to Franklin and Park streets. The Lincoln street drain was extended to Tappan place, and through Bowdoin street to Erie avenue.

A drain was laid in Chestnut street, from the Boston & Albany railroad to Highland street to remove ground water from the road bed, and also by means of catch basins to intercept the surface flow, and prevent washing away the road surface, caused by the water running a long distance upon the steep hill.



On Grant avenue, it was necessary to go to a depth of seventeen feet in order to pass under the Sudbury river conduit. It was thought best at the same time to lay the water and sewer pipes through the culvert under the conduit and thereby save future expense. The manhole built here is double, being intended to be used for the sewer and the drain.

A drain was laid from the culvert at the cemetery on Walnut street to the Sudbury river conduit, connecting with an old drain at that point, and relieving the owners of adjacent land from flowage. A part of this drain was laid upon a timber foundation on account of the excessive depth of muck.

The principal streets which have been repaired during the year are Homer, Walnut and Washington streets and Waverly avenue.

A large amount of work has been performed under widening, reconstruction and improvement, which will more fully appear in the table relating thereto.

The contract for constructing tar concrete sidewalks and street crossings was awarded to Messrs. Simpson Brothers of Boston and Newton, at the following prices, the sidewalks and roadbeds being graded and prepared by the highway department. In the construction of new sidewalks, one-half of the cost is paid directly to the contractor by the abutters.

Sidewalks, new, 70 cts. per square yard, one-half paid by the abutters.

Sidewalks, two layers, 47 cts. per square yard.

Sidewalks, skim coat, 37 1-2 cts. per square yard.

Street Crossings, new, \$1.00 per square yard.

The mileage of concrete sidewalks and street crossings in the several wards is as follows:

Ward 1,	.	.	.	7.18 miles.
" 2,	.	.	.	8.68 "
" 3,	.	.	.	5.76 "
" 4,	.	.	.	5.71 "
" 5,	.	.	.	3.98 "
" 6,	.	.	.	7.65 "
" 7,	.	.	.	9.12 "
				<hr/>
Total,	.	.	.	48.08 "

**Curbing.**

Amount appropriated by order of the City Council for the year 1890,	.	.	.	\$4,000 00
Amount transferred to appropriation for drains and culverts,	.	.		\$600 00
Amount transferred to appropriation for highways and general repairs,	.	.	.	300 00
				<hr/>
				900 00
				<hr/>
Total appropriation,	.	.		\$3,100 00
Total amount expended as per superintendent's and assistant superintendents' record of work,	.	.	.	2,964 04
				<hr/>
Balance unexpended,	.	.	.	\$135 96

The following table shows the number of linear feet, kind and cost of curbing which has been laid :

STREETS.	Wards.	Linear feet of Straight Curbing.	Linear feet of Curved Curbing.	Total Length of Curbing.	Cost.
Arlington and Belmont,	7	12.60	10.46	23.06	\$20.13
Bowdoin and Lincoln, .	5	—	28.79	28.79	34.74
Chestnut, . . . . .	3 and 5	440.30	65.16	505.46	403.90
Curbing to private parties, . . . . . }	—	70.00	—	70.00	31.58
Elliot, . . . . . }	5	68.40	—	68.40	64.85
Norwood ave. and Trowbridge st., . . }	6	10.00	29.30	39.30	40.06
Richardson, . . . . .	1	1,315.30	—	1,315.30	1,155.35
Walnut, . . . . .	2	379.10	—	379.10	306.83
Washington, . . . . .	2, 3, 7	416.25	—	416.25	390.53
Watertown, . . . . .	2	97.50	23.92	121.42	105.76
Wesley, . . . . .	1	182.85	—	182.85	151.99
Stock, . . . . .		352.00	—	352.00	245.22
Miscellaneous, . . . .	7	16.75	—	16.75	13.10
Total, . . . . .		3,361.05	157.63	3,518.68	\$2,964.04

### Drains and Culverts.

Amount appropriated by order of

City Council for the year 1890, \$6,000 00

Amount appropriated for special

drains, . . . . . 25,000 00

Amount transferred from appropria-

tion for curbing, . . . . . 600 00

Total appropriation, . . . . . \$31,600 00

Amount expended as per Auditor's

records, . . . . . \$28,858 78

Amount charged by Auditor to

other appropriations, . . . . . 1,353 13

Amount expended as per superintendent's and

assistant superintendents' records of work, 30,211 91

Amount unexpended, . . . . . \$1,388 09

The following tables show the cost, etc., of the catch basins, culverts and drains constructed or reconstructed during the year, and the streets in which the same were built :

### Drains Constructed in 1890.

STREET.	Size in inches.	Length in feet.	Average cut.	Man Holes.	Catch Basins.	Feet of Inlets.	Size of Inlets in inches.	COST.	LOCATION.
Bowdoin, . . .	10	317	4.5	-	3	105	6	\$1,042.49	Lincoln st. to Erie av.
Lincoln, . . .	12	761	6.0	-	5	144	8		Chester st. to Tappan pl.
Brookline, . . .	12	1,000	6.5	-	1	13	8		Near N. S. King's.
Cabot, . . .	12	431	4.5	-	6	100	8	544.18	Harvard st. to Gay st.
Harvard, . . .	12	219	4.5	-	4	100	8	1,476.13	Laundry br. to Wash'n pk
Charles, . . .	18	752	11.5	-	6	93	6		Angle to near Auburn st.
Chestnut, . . .	15	1,474	7.8	-	-	-	-	2,591.55	B.&A.R.R.toHighland st
	12	180	7.5	-	-	-	-		
	30	200	8.5	1	1	27	8		
Church, . . .	24	200	8.5	1	2	45	8	4,560.39	Eldridge st.to Wav'ley av
	18	1,135	8.5	4	12	230	8		
	15	100	7.0	1	3	100	8		
Franklin, . . .	15	447	6.5	-	2	36	8	*209.77	At Kenrick pk.
Kenrick park, . . .	12	48	6.5	-	2	37	8		West side.
Park, . . .	18	456	7.5	2	6	129	8		At Franklin st.
Waverley av., . .	-	-	-	-	-	-	-	1,557.42	Church st. to Brighton st.
Court, . . .	-	-	-	-	-	-	-		Angle to Washington st.
Elliot, . . .	15	642	6.0	-	4	50	12	2,385.03	Mechanic st. to Col'bia av.
	15	772	5.5	2	1	47	8		
Grant ave., . . .	12	268	7.0	1	5	145	8	2,386.96	Beacon st. to GrayCliff rd.
Centre, . . .	10	113	7.0	-	-	-	-		Carleton st. to Pearl st.
Emerson, . . .	15	517	7.5	1	2	66	8		Pearl st. to Jefferson st.
Hovey, . . .	10	117	6.0	-	2	28	8	492.93	Boyd st. to Pearl st.
No. School, . . .	12	203	6.0	-	2	62	8		At Waban st.
	15	246	7.3	1	4	80	8		Pearl st to Gardner st.
Pearl, . . .	8	281	6.0	2	37	8	-	126.93	Emerson st. to No. School
	12	225	6.8	-	-	-	-		Centre st. westerly.
Thornton, . . .	8	325	6.8	1	4	67	8		Pearl st. to Waban st.
Waban, . . .	10	440	5.8	2	3	55	8	119.95	Wab'n st to Th'rnt'n st.pl.
Newtonville av., .	15	368	6.0	-	-	-	-		Thornton st. to Hovey st.
Norwood av., . .	10	115	2.5	-	1	24	8	797.15	Laundry br. to Lewis st.
Otis, . . .	12	500	8.5	2	6	151	8	739.55	Trowbridge st. to Crys.lk.
	18	135	5.5	1	1	90	8		Hillside av. to Lenox st.
Pearl, . . .	15	152	5.5	-	-	-	-	2,111.55	Laundry br. to Waban st.
Walnut, . . .	15	1,138	7.0	2	8	232	8		Cemetery to Cochituate aq.
Walnut, . . .	12	572	8.0	1	4	222	8	550.24	Lake ave. to Hillside st.
Washington (off) .	12	420	5.8	1	4	239	8	550.24	Through Jenison est.
Washington, . . .	12	312	3.0	-	-	-	-		At Crehore's mill.
Woodward, . . .	12	100	7.0	-	2	30	10	†	At Pine Ridge rd.
						20	8		
Total, . . .		15,681		27	118	3,049		\$23,425.15	

\* Pipes bought but not laid.

† Cost included in widening, reconstruction and improvement.

Drains above 18 inches in diameter are brick. Drains less than 18 inches diameter are Akron or cement drain pipe.

The following miscellaneous items of expenditure have also been charged to drains and culverts :

Adams street, repairing drain, . . . .	\$16 81
Ash street, building culvert, . . . .	167 35
Bellevue street, repairing drains, . . . .	78 72
Boyd's pond, lowering, . . . .	4 00
Brook street, repairing catch basin and drain, .	18 07
Cabot street, cleaning culvert, . . . .	89 15
Central avenue, repairing drain, . . . .	13 33
Centre street, repairing catch basins, . . . .	29 23
Cheese Cake brook, cleaning, . . . .	170 43
Cleaning catch basins, . . . .	2,207 64
Cleaning catch basins and grates, . . . .	384 40
Concord street, repairing bridge, . . . .	63 54
Crafts street, cleaning drain, . . . .	2 00
Cypress street, repairing drain, . . . .	9 24
Elliot street, repairing drain, . . . .	14 25
Elm street, repairing catch basins, . . . .	5 13
Franklin street, repairing catch basins, . . . .	7 99
Grant avenue, building culvert, . . . .	82 38
Greenough street brook, cleaning, . . . .	12 25
Hyde's brook, cleaning, . . . .	100 94
Margin street, cleaning culvert, . . . .	33 52
Mount Ida street, repairing drain, . . . .	5 28
Murray street, repairing drain, . . . .	10 00
Murray street brook, cleaning, . . . .	188 42
Newtonville drain, cleaning, . . . .	196 49
North street, cleaning culvert, . . . .	81 87
Otis street, repairing drain, . . . .	8 24
Pearl street, repairing drain, . . . .	8 50
Pelham street, cleaning drain, . . . .	15 00
Prospect street, repairing drain, . . . .	118 94
Rowe street, cleaning brook, . . . .	343 31
<i>Amount carried forward,</i>	<hr/> \$6,618 32

<i>Amount brought forward,</i>	\$6,618 32
Rowe street, building culvert, . . . .	174 23
Stock on hand, paid for from appropriation for 1890, . . . . .	1,171 38
Walnut street, cleaning culvert, . . . .	28 78
Waltham street, repairing drain, . . . .	205 23
Washington street, repairing drain, . . . .	5 54
Watertown street, repairing drain, . . . .	9 04
Waverley avenue, building catch basins, . . . .	324 10
Sundries, . . . . .	382 04
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Total, . . . . .	\$6,786 76

**Gravel Land.**

Amount appropriated by order of the City Council for the year 1890, . . . . .	\$2,000 00
Amount transferred to appropria- tion for sidewalks and street crossings, . . . . .	1,400 00
<hr/>	
Total appropriation, . . . . .	\$600 00
Amount expended as per superintendent's and assistant superintendents' record of work, . . . .	589 35
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Balance unexpended, . . . . .	\$10 65

The above amount has been expended for the purchase of gravel.

**Highways, General Repairs.**

Amount appropriated by order of the City Council for the year 1890, . . . . .	\$65,000 00
Amount of additional appropriation, . . . . .	1,200 00
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<i>Amount carried forward,</i>	\$66,200 00

<i>Amount brought forward,</i>	\$66,200 00	
Amount transferred from appropriation for curbing, . . . .	300 00	
Amount transferred from appropriation for land damages, . . . .	200 00	
Amount received for services of employes and for materials sold and transferred to general appropriation, . . . . .	2,261 03	
	<hr/>	
Total appropriation, . . . . .		\$68,961 03
Amount expended as per Auditor's records, . . . . .	\$68,135 40	
Amount charged by Auditor to other appropriations, . . . . .	469 79	
	<hr/>	
Amount expended as per superintendent's and assistant superintendents' records of work,		68,605 19
		<hr/>
Balance unexpended, . . . . .		\$355 84

The following table will show in detail the amount expended on each street for maintenance as made up from the superintendent's and assistant superintendents' record of work :

Adams street, . . . . .	\$22 75
Arlington street, . . . . .	18 09
Auburn street, . . . . .	199 95
Auburndale avenue, . . . . .	77 07
Beacon street, . . . . .	195 65
Bellevue street, . . . . .	366 12
Bowers street, . . . . .	69 29
Boyd street, . . . . .	25 98
Boylston street, . . . . .	62 05
Cabot street, . . . . .	101 00
California street, . . . . .	64 49
Central street, . . . . .	101 69
Centre street, . . . . .	180 14
Chapel street, . . . . .	119 32
Charles street, . . . . .	15 81
Cherry street, . . . . .	242 17
Chestnut street, . . . . .	391 98
Church street, . . . . .	25 63
Claremont street, . . . . .	21 11
Concord street, . . . . .	14 60
Copley street, . . . . .	34 21
Cottage street, . . . . .	8 12
Crafts street, . . . . .	35 98
Derby street, . . . . .	427 76
Elliot street, . . . . .	62 89
Eliot avenue, . . . . .	4 40
Elm street, . . . . .	67 37
Elmwood street, . . . . .	4 15
Everett street, . . . . .	60 75

*Amount carried forward,*

\$3,020 52



<i>Amount brought forward,</i>	\$3,020 52
Farlow park, . . . . .	6 53
Fayette street, . . . . .	63 05
Fern street, . . . . .	13 00
Florence street, . . . . .	51 55
Forest street, . . . . .	69 07
Franklin street, . . . . .	451 03
Freeman street, . . . . .	9 62
Fuller street, . . . . .	62 20
Grafton street, . . . . .	360 51
Grant avenue, . . . . .	574 99
Gibbs street, . . . . .	89 91
Glenwood avenue, . . . . .	2 20
Grove street, . . . . .	338 65
Hammond street, . . . . .	34 85
Hancock street, . . . . .	60 55
Harvard street, . . . . .	22 57
Highland avenue, . . . . .	190 85
Highland street, . . . . .	4 75
Hillside avenue, . . . . .	138 27
Hollis street, . . . . .	13 13
Homer street, . . . . .	3,137 93
Hull street, . . . . .	159 24
Hyde avenue, . . . . .	29 69
Institution avenue, . . . . .	26 11
Ivanhoe street, . . . . .	80 75
Jewett street, . . . . .	27 20
Kenrick bridge, . . . . .	5 90
Lake avenue, . . . . .	11 38
Lexington street, . . . . .	322 92
Lincoln park, . . . . .	44
Linwood park, . . . . .	1 00
Lombard street, . . . . .	43 61

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*Amount carried forward,*

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\$9,423 97

<i>Amount brought forward,</i>	\$9,423 97
Lowell street, . . . . .	44 87
Maple street, . . . . .	16 00
Margin street, . . . . .	8 35
Marshall street, . . . . .	13 00
Melrose street, . . . . .	3 30
Middle street, . . . . .	3 45
Mill street, . . . . .	150 34
Mount Vernon street, . . . . .	135 97
Murray street, . . . . .	20 51
Needham bridge, . . . . .	53 13
Newtonville avenue, . . . . .	240 15
Newtonville square, . . . . .	107 72
Nonantum square, . . . . .	93 82
Oak street, . . . . .	5 25
Oak Hill district, . . . . .	1,306 12
Otis street, . . . . .	287 33
Park street, . . . . .	10 05
Peabody street, . . . . .	8 00
Pearl street, . . . . .	27 35
Pembroke street, . . . . .	10 79
Pleasant street, . . . . .	4 89
Prospect street, . . . . .	48 02
Putnam street, . . . . .	25 25
Richardson street, . . . . .	38 75
River street, . . . . .	1 63
Rowe street, . . . . .	19 10
Sargent street, . . . . .	62 84
South street, . . . . .	36 98
Station street, . . . . .	644 11
Summit street, . . . . .	7 29
Temple street, . . . . .	533 73
Thornton street, . . . . .	22 65

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*Amount carried forward,*


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\$13,414 71

<i>Amount brought forward,</i>	\$13,414 71
Tremont street, . . . . .	50 41
Vernon street, . . . . .	542 59
Waban street, . . . . .	8 08
Waban park, . . . . .	11 75
Wales street, . . . . .	55 85
Walnut street, . . . . .	2,565 83
Waltham street, . . . . .	115 00
Ward street, . . . . .	59 39
Washington street, . . . . .	13,445 17
Watertown street, . . . . .	191 64
Waverley avenue, . . . . .	1,084 72
Webster street, . . . . .	326 53
Winchester street, . . . . .	47 09
Wolcott street, . . . . .	68 87
Woodbine street, . . . . .	58 10
Woodland avenue, . . . . .	173 74
Woodward street, . . . . .	104 03
Cleaning crossings, . . . . .	554 44
Cleaning gutters, . . . . .	6,473 96
Crushed stone sold to private parties, . . . . .	2,380 75
Cutting grass, . . . . .	103 27
Derrick, . . . . .	22 81
Gravel pits, . . . . .	8,941 75
Horse roller, . . . . .	240 80
House at Murray street ledge, . . . . .	1,200 00
Patching streets, . . . . .	2,519 51
Picking stones, . . . . .	975 93
Portable engine, . . . . .	51 25
Purchase of horses, . . . . .	1,375 00
Removing snow, . . . . .	2,526 56
Repairing crushers, . . . . .	1,503 69
Repairing washouts, . . . . .	109 03
<i>Amount carried forward,</i>	\$61,302 25

<i>Amount brought forward,</i>	\$61,302 25
Stable account, . . . . .	2,225 28
Steam drill, . . . . .	66 45
Steam roller, . . . . .	469 90
Storing stone, . . . . .	1,006 61
Street signs, . . . . .	25 17
Superintendent's salary, . . . . .	1,816 88
Tools, . . . . .	773 54
Ward 2, highway yard, . . . . .	44 57
Miscellaneous, . . . . .	874 54
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Total, . . . . .	\$68,605 19

### Highways, Widening, Reconstruction and Improvements.

Amount appropriated by order of the City Council for the year 1890, . . . . .	\$22,000 00
Amount of additional appropriation,	3,500 00
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Total appropriation, . . . . .	\$25,500 00
Amount expended as per superin- tendent's and assistant superin- tendents' records of work, .	\$24,008 79
Amount charged by Auditor in ex- cess, . . . . .	1,557 42
	<hr/>
Amount expended as per Auditor's records, .	25,566 21
	<hr/>
Amount overdrawn, . . . . .	\$66 21

The following table shows in detail the expenditure under this appropriation :

STREET.	Ward.	Location and Description of Work.	Cost.
Auburn, . . .	4	Regrading and reconstructing, Greenough to Grove streets.	\$4,416.50
Elliot, . . . .	5	Regrading and reconstructing, Mechanics street to Columbus ave.	3,000.00
Kenrick, . . .	7	Regrading and reconstructing, east of Magnolia ave.	1,823.33
Union, . . . .	6	Widening and reconstructing, Station street to Institution ave.	2,342.99
Walnut, . . .	2	Regrading and reconstructing, Cabot to Mill streets.	3,348.94
Walnut, . . .	6	Regrading and reconstructing, Homer street to Cemetery gateway.	3,207.57
Washington, . .	4	Regrading and reconstructing, Grove to Hamilton streets.	2,259.78
Washington, . .	7	Regrading and reconstructing, Park street to Waverley ave.	2,073.11
Woodward, . .	5	Regrading and reconstructing, junction of Beacon street.	1,536 57
		Total cost, . . . .	\$24,008.79

### Land Damages.

Amount appropriated by order of the City Council for the year 1890, . . . . .	\$500 00
Amount received from Boston & Albany railroad for widening Union street, . . . . .	4,518 50
Total, . . . . .	\$5,018 50
Amount transferred to appropriation for highway general repairs, . . . .	200 00
Total appropriation, . . . . .	\$4,818 50
Amount expended as per Auditor's records, . . . . .	4,618 50
Balance unexpended, . . . . .	\$200 00

The above amount has been expended as follows :

Widening Union street, . . . . .	\$4,518 50
Right of way for drain in land of J. G. Lyford, Court street, . . . . .	100 00
Total, . . . . .	<u>\$4,618 50</u>

### Removal of Ashes.

The collection of ashes is made by the highway department, under the direction of the Highway Surveyors :

Amount appropriated by order of City Council for the year 1890, . . . . .	\$5,000 00
Total amount expended, as per superintendent's and assistant superintendents' records of work, . . . . .	4,432 07
Balance unexpended, . . . . .	<u>\$567 93</u>

The following statement will show the cost of the collection of ashes for each ward, and the day of the week on which the collection is made :

Wards 1 and 7, Thursday, . . . . .	\$1,027 22
Ward 2, Friday, . . . . .	708 90
Ward 3, Saturday, . . . . .	673 63
Ward 4, Monday, . . . . .	431 85
Ward 5, Tuesday, . . . . .	455 41
Ward 6, Wednesday, . . . . .	630 11
Cost of labor, as per superintendent's and as- sistant superintendents' records of work, .	<u>\$3,927 12</u>
New horse, . . . . .	275 00
Maintenance of carts and harness, . . . . .	160 75
Blacksmithing, . . . . .	68 35
Miscellaneous, . . . . .	85
Total, . . . . .	<u>\$4,432 07</u>

**Sidewalks and Street Crossings.**

Amount appropriated by order of City Council for the year 1890,	\$15,000 00
Amount transferred from land damages, . . . . .	1,400 00
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Total appropriation, . . . .	\$16,400 00
Amount expended as per superin- tendent's and assistant superin- dents' record of work, . . . .	\$15,581 49
Amount charged by Auditor in excess, . . . . .	265 50
	<hr/>
Amount expended as per Auditor's records, . .	\$15,846 99
	<hr/>
Balance unexpended, . . . . .	\$553 01

The following table shows the number of square yards of concrete and street crossings laid and repaired, the number of feet of flagstone crossings laid, and the cost of all sidewalks and crossings constructed:



## REPORT OF CITY ENGINEER.

STREET.	WARD.	SQUARE YARDS OF CONCRETE.				Cost.	REMARKS.
		Sidewalks, new.	Sidewalks Repaired.	Crossings, New.	Crossings Repaired.		
Adams, . . . . .	1	.	730.72	.	.	\$115.39	Gravel.
Arlington, . . . . .	7	.	.	.	.	1,106.60	Gravel.
Ash, . . . . .	4	.	.	.	.	6.40	
Auburn, . . . . .	4	.	80.36	.	4.62	42.37	
Baldwin, . . . . .	7	.	212.97	.	.	122.26	
Beacon, . . . . .	6	.	.	34.00	40.32	817.50	Partly gravel.
Bellevue, . . . . .	1	54.93	235.98	45.83	.	415.59	Partly gravel.
Belmont, . . . . .	7	.	836.32	10.00	.	857.55	
Bowdoin, . . . . .	5	235.81	16.68	.	.	123.37	
Boylston, . . . . .	5	.	3.44	.	.	2.40	
Brookside ave., . . . . .	2	.	.	.	.	22.77	Gravel.
Cabot, . . . . .	2	.	.	.	.	7.41	Gravel.
Carleton, . . . . .	7	.	.	.	.	15.07	Gravel.
Central ave., . . . . .	2	.	.	.	.	15.20	Gravel.
Central, . . . . .	4	118.16	197.16	.	.	193.39	
Centre, . . . . .	1, 6, 7,	.	310.33	59.76	134.05	453.32	Partly gravel.
Chapel, . . . . .	1	.	.	.	.	51.06	Gravel.
Cherry, . . . . .	3	.	.	.	.	17.75	Gravel.
Chestnut Hill road, . . . . .	6	.	.	.	.	1.10	Plank.
Chestnut, . . . . .	3, 5,	335.09	135.51	27.68	3.58	764.61	Partly gravel.
Clark, . . . . .	6	.	.	.	.	176.12	Gravel.
Columbus, . . . . .	5	.	626.49	.	.	427.78	
Crafts, . . . . .	2	.	78.98	173.63	.	275.04	
Cypress, . . . . .	6	.	.	.	.	8.35	
Elliot, . . . . .	5	46.50	.	.	.	82.15	
Erie ave., . . . . .	5	101.16	.	.	.	42.91	
Forest, . . . . .	5	108.91	36.62	32.70	30.09	127.47	



Franklin, . . . . .	7	..	91.90	34.72	..	176.82	Gravel.
Gardner, . . . . .	1	..	..	..	..	16.96	Gravel.
Glenwood ave., . . . .	6	..	..	..	..	8.50	Gravel.
Green, . . . . .	1	..	..	..	..	8.43	Gravel.
Hall, . . . . .	1	..	119.37	..	..	65.85	Plank.
Hammond, . . . . .	6	..	..	..	..	49.22	Gravel.
Hancock ave., . . . .	6	..	..	..	..	20.43	Gravel.
High., . . . .	5	..	289.97	..	..	135.34	Gravel.
Highland ave., . . . .	2	..	..	..	..	33.72	Gravel.
Homer, . . . . .	6	..	..	..	..	77.25	Gravel.
Hull, . . . . .	2	..	..	..	..	42.61	Gravel.
Hyde, . . . . .	5	..	..	..	..	27.22	Gravel.
Institution ave., . . . .	6	..	266.49	..	..	110.19	Gravel.
Ivanhoe, . . . . .	7	59.42	..	..	..	33.21	Gravel.
Jefferson, . . . . .	7	..	93.31	..	..	86.21	Gravel.
Lake ave., . . . .	6	154.09	..	..	..	237.36	Gravel.
Lexington, . . . . .	4	211.39	..	..	..	80.00	Gravel.
Lincoln, . . . . .	5	..	57.92	53.71	..	94.24	Gravel.
Linden, . . . . .	5	..	..	..	..	12.25	Gravel.
Linwood park, . . . .	2	..	..	..	..	135.00	Gravel.
Lombard, . . . . .	1	..	..	..	..	40.32	Gravel.
Lowell, . . . . .	2	..	..	..	..	39.15	Gravel.
Marshall, . . . . .	6	..	..	..	..	15.50	Gravel.
Middle, . . . . .	1	..	..	..	..	9.81	Gravel.
Mt. Ida, . . . . .	1	..	204.63	..	..	116.24	Partly Gravel.
Mt. Vernon, . . . . .	3	..	229.39	..	..	180.05	Gravel.
Murray, . . . . .	2	..	..	..	..	54.42	Partly Gravel.
Newtonville ave., . . .	2	..	37.10	..	..	86.14	Gravel.
Nonantum square, . . .	1, 7,	..	..	..	..	123.75	Gravel.
North, . . . . .	2	..	..	..	..	22.81	Gravel.
Norwood ave., . . . .	6	219.55	..	63.26	..	168.10	Gravel.
Carried forward, . . .	..	1,645.01	4,891.64	165.29	212.66	\$8,598.03	

## REPORT OF CITY ENGINEER.

STREET.	WARD.	SQUARE YARDS OF CONCRETE.				Cost.	REMARKS.
		Sidewalks, New.	Sidewalks, Repaired.	Crossings, New.	Crossings, Repaired.		
<i>Brought forward.</i>							
Oak, . . . . .	5	1,645.01	4,891.64	165.29	212.66	\$8,598.03	
Orchard, . . . . .	7	..	16.05	..	54.59	41.50	Gravel.
Otis, . . . . .	2	..	..	..	..	35.21	Plank.
Park place, . . . . .	2	196.61	..	..	..	376.32	
Park, . . . . .	7	..	..	30.60	..	100.79	
Parker, . . . . .	6	..	700.24	..	..	46.35	
Pearl, . . . . .	1	..	..	..	..	296.37	Gravel.
Pembroke, . . . . .	7	..	..	..	..	33.70	Gravel.
Perkins, . . . . .	3	54.99	..	..	..	41.44	
Pleasant, . . . . .	6	79.49	9.69	..	..	19.25	
Richardson, . . . . .	1	..	1,063.78	..	..	79.95	
River, . . . . .	3	..	..	91.49	..	921.71	Partly Gravel.
Rowe, . . . . .	4	..	..	..	..	299.22	Gravel.
Sargent, . . . . .	7	..	..	..	..	14.10	Gravel.
Seaverns, . . . . .	4	..	..	39.35	..	10.07	Partly Gravel.
Shaw, . . . . .	3	..	..	36.57	..	94.74	
South, . . . . .	6	..	..	..	..	42.82	Plank.
Station, . . . . .	6	..	443.37	..	..	123.96	
Tremont, . . . . .	7	303.91	..	..	..	223.41	
Trowbridge, . . . . .	6	83.06	..	..	..	308.56	Partly Gravel.
Union, . . . . .	6	..	..	13.66	..	195.80	
Vernon, . . . . .	7	..	329.87	27.55	68.41	18.16	
Waban park, . . . . .	1	..	178.60	..	..	283.22	
Walnut, . . . . .	2, 5,	332.8	110.44	78.04	..	101.01	Partly Gravel.
Warren, . . . . .	6	82.76	..	..	..	369.73	
Washington park, . . . . .	2	..	..	..	..	36.84	Gravel.
						12.12	

Washington, . . .	1,2,3,4,7	381.12	896.05	332.14	208.29	1,760.35	Partly gravel.
Watertown, . . .	2	201.77	187.25	..	..	226.81	Partly gravel.
Waverley ave, . .	6	..	..	96.20	..	170.17	Gravel.
Webster, . . .	3	..	..	..	..	42.37	Gravel.
Wesley, . . .	1	..	..	..	..	20.00	Gravel.
West, . . .	2	..	..	..	..	25.21	Gravel.
Willow, . . .	6	..	..	..	..	22.10	Gravel.
Wolcott, . . .	4	..	..	..	..	6.40	Gravel.
Woodland ave, . .	4	48.11	..	..	..	30.33	Gravel.
Woodward, . . .	5	..	..	..	..	207.83	Gravel.
Miscellaneous, . .	..	..	..	..	..	345.54	Gravel.
Totals, . . . . .		3,409.64	8,826.98	1,280.89	543.95	\$15,581.49	

**Trimming Trees.**

There has been expended for trimming trees the sum of \$312.53, which has been charged to the appropriation for miscellaneous expenses.

**Watering of Streets.**

Amount appropriated by order of the City Council for the year 1890, . . . . .	\$7,500 00
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The appropriation was expended as follows :

Paid Water Department, for use of water, . . . . .	\$1,748 79
Timothy Stuart, watering Ward 1, and southeast part of Ward 7, . . . . .	950 00
John Joyce, watering north part of Ward 7, . . . . .	325 00
William H. Mague, watering Wards 2, 3 and 4, . . . . .	1,816 66
Thomas R. Frost, watering Ward 6, . . . . .	940 00
J. M. Keating, watering Ward 5, . . . . .	325 00
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Total amount expended, . . . . .	6,105 45
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Balance unexpended, . . . . .	\$1,394 55





## WATER DÉPARTMENT.

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The surveys for land taken in the town of Needham and the city of Newton, for the protection of, and from which to obtain an additional water supply, were completed and plans made and recorded; 664.64 acres of land were taken in the town of Needham, and 91.21 acres in the city of Newton.

A large amount of work was required to prepare plans for the seizure of these lands. There were no plans of the district existing; many of the owners were unknown, and when known the location and boundaries of their lands were frequently unknown. A survey of the entire district was necessary, and a thorough search of the records of the Norfolk Registry of Deeds and of Probate was made. Many of the properties having come into the possession of the present owners by inheritance, it was frequently necessary to search back a hundred years in order to make the identification.

There has been paid from the Water Construction Account the following sums for engineering and inspection :

Additional supply, . . . . .	\$3,597 88
New reservoir, . . . . .	3,200 68
New engine and work at pumping station, . . . . .	255 00
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Total, . . . . .	\$7,053 56

Surveys and topographical plans were also made of the land on Waban Hill taken or purchased for reservoir purposes. There was taken from the heirs of Hiram Tucker and

William Lawrence one and one-half acres, and purchased from Mr. F. W. Sargent 422,605 square feet.

Detail plans and specifications for extending and improving the water supply, as set forth in report made to the City Council in December, 1889, were prepared and proposals received.

The plan determined upon for obtaining additional water supply was by means of a wooden flume four feet square, inside measure, and placed in the ground between elevation 81 and 85 above city base and about six feet below the normal level of the water in the river, which is at elevation 91.

The flume was extended from the up stream end of the old filter basin to Kendrick street, a distance of about 2,220 feet, and thirty feet to three hundred feet from, and parallel to the river, within the above limits.

The general elevation of the ground along the lines of conduit range from ninety-three to ninety-seven feet above the city base.

Underlying the surface of the ground was first a layer of loam or muck from one to four feet deep, a layer of gravel four to fifteen feet deep, variable in quality from fine sandy or coarse loose gravel to hard pan, and in places almost pure clay.

Underlying the gravel was a layer of quicksand from ten to eighty or more feet deep, containing a considerable percentage of clay. Enclosed in the layer of quicksand were pockets of gravel or coarse sand, sometimes of considerable areas and thickness, and underlying it there was generally found a layer of coarse sand or gravel running into a hard pan immediately above the bed rock or boulder. In the layers of hard pan were veins of coarse gravel.

The strata, veins or pockets of coarse sand or gravel furnished a free passage for water, with which the various materials spoken of was surcharged.



The frames of the conduit were made of spruce timber with uprights four inches by six inches, and the caps and sills four inches by eight inches, framed and securely fastened together with eight inch by one inch oak trenails. The frames were placed about three feet apart on centres, and covered with hemlock boards four inches thick, laid with space enough between each to allow for the infiltration of water.

A large portion of the conduit was laid in several feet of quicksand, and in order to insure against its infiltration into the conduit, the trench was excavated about one foot below the bottom of the conduit and the space filled with fine screened gravel, not above one-half inch in greatest dimension. The trench was excavated five feet wider than the outside dimension of the conduit.

The space next the conduit one foot in width was filled with screened gravel from one-half to one and one-half inches in greatest dimension, and the outside space one and one half feet wide was filled with gravel from one-eighth to one-half inch in dimension. Where there was a great depth of quicksand the excavation was made deeper, and a thick layer of gravel less than one-eighth inch in greatest dimension was used to fill the space excavated below grade.

In order to obtain the water from the pockets of gravel in the quicksand, and from the strata of gravel below it, tube wells of galvanized wrought iron pipe, two and one-half inches in diameter, were driven and connected into the conduit.

It was found that the water was under a pressure about equal to the resistance it would meet with in passing through the compact strata of quicksand, and there is a constant flow of water from the well tubes into the conduit.

The plan for improving the water supply was to extend the wooden flume or conduit through the old filter basin, and fill the basin with gravel, also to build a covered masonry reservoir in which to store the surplus water pumped.

By these means the water is not exposed to the light until drawn for use, hence will not undergo a change in quality.

The letting of the proposed work was advertised, and proposals asked for, which were received and opened on April 18th, 1890, from the following parties: From Brigham & Co., of Cambridge, and amounted as determined by price bid multiplied by approximate quantity of each class of work to \$116,055.00, and one from C. Horton & Co., for \$59,690.00.

The proposals not being satisfactory to the Water Board, were rejected and new proposals asked for, which were received and opened on April 25th, 1890, from the following parties: From Brigham & Co., of Cambridge, Mass., for \$106,635.00; from Messrs. Moulton, O'Mahoney & Trumbull, of Lawrence, Mass., for \$100,608.00; and from C. Horton & Co., of Somerville, Mass., for \$57,580.00.

The following table shows the canvass of the bids received:

**SHEET ONE.—Cauvass of Bids for Filtering Conduit and Driven Wells received by the Water Board April 18 and 25, 1890.**

ITEMS.	Quantities.	Bids received April 25, 1890.						Bids received April 18, 1890.					
		MOULTON, O'MAHONEY & TRUMBULL, of Lawrence.		E. F. BRIGHAM & Co., of Cambridge.		C. P. HORTON, of Boston.		E. F. BRIGHAM & Co., of Cambridge.		C. P. HORTON, of Boston.			
a	Leam Excavation placed, . . .	\$ 38	\$342 00	\$ 60	\$540 00	\$ 25	\$225 00	\$1 00	\$900 00	\$ 25	\$225 00		
aa	Leam from spoil bank placed, . .	30	2,160 00	75	5,400 00	30	2,160 00	1 50	10,800 00	30	2,160 00		
b	Selected material placed, . . .	1 25	5,000 00	1 00	4,000 00	75	3,000 00	75	3,000 00	75	3,000 00		
bb	Selected material obtained outside,	1 50	825 00	1 50	825 00	1 00	550 00	1 50	825 00	1 00	550 00		
c	Rock Excavation, . . . . .	2 50	125 00	6 00	300 00	8 00	400 00	5 00	250 00	8 00	400 00		
d	Wooden Conduit, . . . . .	25 80	57,276 00	31 00	68 820 00	18 50	41,070 00	34 00	75,480 00	18 50	41,070 00		
e	Manholes, brick or concrete, . .	165 00	1,320 00	125 00	1,000 00	75 00	600 00	125 00	1,000 00	75	600 00		
f	Driven wells and connections, . .	4 00	31,200 00	2 75	21,450 00	1 00	7,800 00	2 50	19,500 00	1 15	8,970 00		
g	2½ in. Chapman Valves with gate-boxes and connections, . . . .	12 00	1,560 00	10 00	1,300 00	7 50	975 00	10 00	1,300 00	5 50	715 00		
h	Laying 20 in. iron pipe and removing the same, . . . . .	40	800 00	1 50	3,000 00	40	800 00	1 50	3,000 00	1 00	2,000 00		
	Total bid, . . . . .		\$100,608 00		\$106,635 00		\$57,580 00		\$116,055 00		\$59,690 00		

The second proposals received, not being satisfactory to the Water Board, they voted to reject all bids, and instructed the City Engineer to take charge of the work at the filter basin and conduit, either by day work or by contracting such portions as he may deem proper.

In accordance with these instructions, proposals were received for furnishing various classes of materials to be used, and contracts placed.

A contract was made with Charles H. Hale of Newton, for furnishing labor and tools for the trench work and for grading, and with S. A. Piper of Newton, to take charge of the carpenter work.

The following prices were paid for the various classes of labor, including tools :

Superintendent, \$5.00 per day of 10 hours.

Foremen, \$3.00 per day of 10 hours.

Carpenters, \$2.00 to \$3.50 per day of 9 hours.

Machinists, \$2.00 to \$3.00 per day of 10 hours.

Blacksmiths, \$2.50 per day of 10 hours.

Engine drivers, \$2.00 to \$2.50 per day of 10 and 12 hours.

Bracers and drivers, \$2.25 per day of 10 hours.

Labor, \$1.75 per day of 10 hours.

Assistants from this office were detailed to take charge of and act in the following capacities on the work :

William P. Morse, resident engineer, in charge of work.

Fred O. Doane, assistant, in charge of pipe driving, developing and connecting the wells into the conduit.

Charles Temperley, time-keeper and rod-man.

Harvey A. Hanscom, rod-man and clerk.

James E. Cahill, superintendent of the work and machinery.

S. A. Piper, superintendent of carpenter work.

Richard Kerrivan, foreman in machine and pipe fitting shop.

Work was begun on May 14th, 1890.

The site of the conduit, and for a distance of about thirty feet each side, was cleared of wood, brush and loam, and a temporary roadway constructed on the westerly side, to gain access to the work by teams.

Temporary buildings were constructed, as follows:

A carpenter shop, fitted up with a vertical steam boiler and engine, operating by means of shaft and necessary counter-shafts and fittings, one swing cutting saw, one splitting saw, and one power borer.

A pipe machine shop, adjoining carpenter shop, and supplying with power, from the main shaft of the latter, the pipe cutting and drilling machines.

An engineer's office.

A blacksmith shop complete, and a horse shed with storage shed attached.

A temporary line of two and one-half inch galvanized iron water pipe was connected with the main water pipes, and was run from the pumping station grounds across the river, parallel with line of the proposed work to Kendrick street. This pipe was used as a main to supply water for the steam boilers, charging the pumps, and for use in driving wells.

A line of pipe wells were driven on each side of the conduit line, four and one-half feet out from the centre line, and about thirty-three and one-half feet apart on a side. These were galvanized wrought iron pipes, two and one-half inches in diameter, connected with screw couplings, and were driven with open ends.

The bottom section of each well consisted of an extra heavy coupling on the lower end of a perforated pipe, which was galvanized after being perforated, and varied in length from six inches to three feet, according to the thickness of the water bearing strata into which they were driven.

The perforations were one-fourth inch in diameter,

reamed out to three-eighths inch on the outside, and set equidistant apart around the circumference of the pipe, in number about eighty-five holes to the running foot.

As the supply of water to the city had to be kept up when the consumption was the greatest, the first section of wells, for a distance of 500 feet along the line of the conduit were ganged together at the surface of the ground by a line of six-inch wrought iron screw pipe, laid on each bank of the trench, connected to the wells by branches, flanges and short pipes; and connecting by eight and ten inch pipes a pumping plant capable of raising 1,000,000 gallons per day.

A temporary dam was constructed on the north side of the old dam in the middle of the filter gallery, and a line of twenty inch cast iron water main was laid from the section of the filter basin north of the dam, a distance of 1,092 feet to pumping plant for driven wells, leaving a branch through which water from a ten inch centrifugal pump was pumped.

The main was laid to a grade on the surface of the ground with joints caulked with jute packing dipped in cement.

A ten inch centrifugal pump was fitted up at the south end of the old basin, and so arranged as to pump either into the river or into the supply of the city by connection with the twenty inch main, the latter arrangement being used only at night when the water was clear or when the needs of the city demanded it.

A 10x14x16 Knowles pump was set up and connected with the thirty-two wells ganged together, and connections made to discharge into the twenty inch main.

This pump served a three-fold purpose: 1st, furnishing the city with clear water; 2nd, lowering the ground water in the ditch, preventing in a measure the inflow of the quicksand; 3rd, the development of the wells connected, and continuous pumping clearing out all fine sand, and increasing the flow by the enlarged cavity or water storage area around the lower section of the wells.



The pumping plant used on the work was one 1,000,000 gallon Knowles tank pump, one ten inch and two six inch centrifugal pumps. The amount of water to be handled was found to be nearly equal to the full capacity of the pumping outfit.

The trench for conduit was excavated twelve feet wide and on an average fifteen feet deep. The dimensions of the bracing, sheathing, etc., was as follows:

Sheathing, spruce, two inches by eight inches to twelve inches by sixteen feet long.

Rangers, spruce, six inches by six inches by eighteen feet to twenty-four feet long.

Braces, spruce, six inches by six inches.

The sheathing was driven by hand, the rangers were put in four feet apart and braces set eight to ten feet apart.

Manholes were placed in the line of the conduit about 260 feet apart and at all angles. They were of the same width as the conduit and eight feet in the clear in length. Double frames were put in the conduit at each end and four hard pine frames, forming grooves for two sets of four inch stop planks were put in the centre of manholes and set at right angles to the conduit line.

Cast iron stop plank grooves seven feet long were set on the frames and bedded in the walls of the manholes which are twelve inches thick and composed of cement concrete, having one part American cement, two parts sand and five parts stone, brought up from the bottom of the trench to within two feet of the finished grade. The walls of the upper two feet are brick upon which is fitted a cast iron frame and cover.

In order to provide space so that the water in the conduit can be pumped out, the bottom of the manholes are constructed from two inches to fourteen inches below the level of the conduit.

While it was not intended to construct any portion of the conduit in the old filter basin until the summer of 1891, as the work progressed it was found that the portion between the dam and new conduit could be constructed at much less expense while the pumps were set up, and it was decided to go on with the work, and 732 feet of conduit was laid in the old filter basin.

A description of the rigging used for driving the well tubes may be of interest. The hand driving rig consisted of a tripod having legs about twenty feet long, made out of pieces of one and one-half inch wrought iron pipe joined together with a bar run through the top part of a T coupling, screwed to one end of the pipes.

The bottom ends had a shoe, consisting of a broad cap. To the bar at the top was attached an iron well wheel, over which a rope was passed and used to raise a cast iron hammer, weighing about 115 pounds. In the centre of the hammer was inserted an oak plug about two inches in diameter. To the oak plug a steel guide rod four feet long and seven-eighths inch in diameter was attached. On the top of the well tube was screwed a heavy steel drive cap, with a hole in the top large enough to receive the guide rod. Three men constituted a well driving gang, two to operate the weight, and one lead man to keep the pipe screwed up, and watch the progress of the driving, and the character of the material driven through.

For driving the deep wells a heavier rigging to be operated by steam power was purchased from the American Well Works of Aurora, Ill., with which we were able to do fairly effective work. By a more compact arrangement of the derrick it can be made much more effective, and I believe can then be used with economy on light work, where any considerable amount of work is to be done. As it was, after charging to the work performed twenty-five per cent. of the cost of the rigging for depreciation in value, the cost



per foot for the deep well work was but little more than the cost of the shallow wells driven by hand.

The wells were cleaned out and developed by means of a water jet, under considerable pressure, being forced through a three-fourths inch or one inch wrought iron pipe, and discharged near the bottom of the pipe well about a steel drill point, by means of two one-fourth inch holes one on each side of the base of the drill, which was screwed to the wrought iron pipe.

The water jet would force to the surface the gravel and sand in the pipe and just below it, and leave the well when fully developed with a more or less open space about its lower end, making a ready passage for the water from the ground to the well.

Along the line of the new conduit there were driven 127 completed wells.

No. of wells driven by hand power, . . . . .	98
No. of wells driven by steam power, . . . . .	29
No. of feet of wells driven by hand power, . . . . .	5,204
No. of feet of wells driven by steam power, . . . . .	2,664
Maximum length of wells driven by hand power, . . . . .	114 ft.
Maximum length of wells driven by steam power, . . . . .	130 ft.
Minimum length of wells driven by hand power, . . . . .	28 ft.
Minimum length of wells driven by steam power, . . . . .	68 ft.
Average length of wells driven by hand power, . . . . .	53.1 ft.
Average length of wells driven by steam power, . . . . .	91.86 ft.
Cost per foot of wells driven by hand power, including cost of pipe, couplings, developing wells, etc., . . . . .	\$0 83
Cost per foot of wells driven by steam power, including twenty-five per cent. of cost of rigging for depreciation in value, . . . . .	\$0 86
Elevation of top of wells above city base, . . . . .	95
Elevation of bottom of deepest well below city base, . . . . .	-35

Elevation of bottom of shallowest well above city base, . . . . .	67
Average elevation of bottom of wells above city base, . . . . .	4.14

Along line of the conduit laid in the old filter basin there were driven by hand power forty-seven completed wells.

Maximum length of wells driven by hand power,	49 ft.
Minimum length of wells driven by hand power,	21 1-2 ft.
No. of feet of wells driven by hand power, .	1,628
Average length of wells driven by hand power, .	34.64 ft.
Cost per foot of wells driven by hand power, including cost of pipe, couplings, developing, etc., . . . . .	\$0 59
Elevation of top of wells above city base, . . .	93.00
Elevation of bottom of deepest well above city base, . . . . .	44.00
Elevation of bottom of shallowest well above city base, . . . . .	71.50

The city base, as relates to elevation of grades is tide marsh level in Boston harbor.

The accompanying schedule, sheet 2, shows a comparison of the cost of the filtering conduit as actually done, with the cost as per prices in bids received from contractors, April 18th and 25th, with actual quantities.



### **New Pumping Engine and Boilers.**

Specifications and forms of contract were prepared for furnishing and erecting a new pumping plant capable of delivering 3,000,000 to 5,000,000 U. S. gallons of water from the pump well into the new reservoir, and of giving a duty of not less than 100,000,000 foot lbs. per 100 lbs. of combustibles upon twenty-four hour test. The class of and design for engines and pumps was left to bidder, the piston speed being limited to 120 feet for horizontal, and 250 feet for crank and fly wheel type engine. Proposals were received by the Water Board April 25th, 1890, from George F. Blake Manufacturing Co., of Boston, Mass., from Arthur J. L. Loretz, of Brooklyn, N. Y., from Henry R. Worthington, of N. Y.

The accompanying sheet shows a canvass of the proposals received, and the contract was made with George F. Blake Manufacturing Co., on June 6th, 1890, for a high duty pumping engine and two boilers.

The pumping engine contracted for is to have a capacity of five million gallons per twenty-four hours delivered at the new reservoir on Waban Hill with a piston speed of not over 250 feet per minute.

It is to be a direct acting, fly wheel, cross compound engine, steam cylinders twenty to twenty-four inches and forty to forty-eight inches, with pump plungers thirteen and one-half inches in diameter, stroke forty inches, Corliss type of valve gear, with independent eccentric on the low pressure inlet and exhaust valves, and automatic governor on the high pressure inlet valve gear only.

The contract price for the pumping engine set up complete is \$17,431.00.

The two boilers to be of the Belpaire locomotive fire box type, each one eighty-four inches in diameter, thirty feet long, and capable of furnishing sufficient steam at 150 lbs. pressure to operate the engine at its fullest capacity.

Contract price for the two boilers, all set up in the boiler house, \$15,790.00. This includes all necessary feed pumps, furniture and fittings. The city is to put in the foundation for the engines at its own expense.

The engines and boilers are to be tested separately. The guaranteed duty of the engine is 115 million foot pounds. The boilers are to evaporate not less than eleven pounds of water per pound of combustible, exclusive of the effect of a feed water heater.

## REPORT OF CITY ENGINEER.

## SHEET THREE.—Canvass of Bids for High Duty Pumping Engine and Boilers Received April 25, 1890.

NAME OF BIDDER.	One 3 mil. gal. High Duty Pump Engine.	Two Belpaire Locomotive Firebox Boilers.	Two Underfired Return Blue Boilers.	Two complete combustion, Locomotive Type Firebox Boilers.	Two complete combustion, Regular Pattern Boilers.	Total bid.	Pumping capacity.	Guaranteed duty.
George F. Blake Manufacturing Co., of Boston, Mass.	\$17,431 17,431 17,431 17,431	14,314 — — —	— \$8,583 — —	— \$11,665 — —	— — \$0,505 —	\$31,746 26,145 29,096 27,996 23,465 19,065 22,015 21,415	5 mil. gals. 5 " " " " " " " " " " " "	115 mil. ft. lbs. 115 " " " " " " " " " " " "
Guaranteed duty, 115 and 112.	— — — —	— — — —	— 4,814 — —	— 7,765 — —	— — — 7,165	— — — —	5 mil. gals. 5 " " " " " " " " " " " "	112 " " " " " " " " " " " "
Arthur I. L. Loretz, of Brooklyn, N. Y. Duty 110, 105.	21,000 20,000 18,000	— — —	7,500 — —	— — —	— — —	{ 25,500 Total, { 28,500 { 21,000 Total, { 23,000	5 mil. gals. 3 " " " " " " " " " " " "	110 mil. ft. lbs. 105 " " " " " " " " " " " "
Henry R. Worthington, of New York. Duty 105.	29,700 — —	24,700 19,300 —	— — —	— — —	— — —	54,450 41,100 —	5 mil. gals. 3 " " " " " " " " " " " "	105 mil. ft. lbs. 105 " " " " " " " " " " " "
Contract as awarded to the Geo. F. Blake Mfg Co. Duty 115.	17,431	15,790	—	—	—	36,221	5 mil. gals.	115 mil. ft. lbs.

**Covered Reservoir.**

Plans and specifications for constructing a covered masonry reservoir were prepared. The letting of the proposed work was advertised, and proposals asked for, which were received and opened by the Water Board, May 18th, 1890.

- From John H. Leavitt, Boston, Mass., and amounted to \$37,681.00.
- From W. H. Mague, Newton, Mass., and amounted to \$39,906.68.
- From Moulton, O'Mahoney & Trumbull, Lawrence, Mass., and amounted to \$39,948.10.
- From George M. Atkins & Co., Palmer, Mass., and amounted to \$40,005.00.
- From D. Henry Cram, Boston, Mass., and amounted to \$41,435.61.
- From Thomas Rowe, Newton, Mass., and amounted to \$41,586.25.
- From Howard Coon & Co., Boston, Mass., and amounted to \$47,316.50.
- From W. A. Ward, Lowell, Mass., and amounted to \$53,201.00.
- From Smith, Mahoney & Dorman, Lawrence, Mass., and amounted to \$65,490.15.

The contract was awarded by the Water Board to Mr. John H. Leavitt, of Boston, Mass. Before the execution of the contract, it was assigned with the consent of the Water Board to Mr. W. H. Mague, of Newton.

The accompanying sheet shows a comparison of the bids received.



## SHEET FOUR.—Canvass of Bids for Building Covered

	ITEMS.	Quantities.	Thomas Rowe, Newton.		Moulton, O'Mahoney & Trumbull, Lawrence.		W. A. Ward, Lowell.	
a	Removing loam to spoil bank, . .	1,500 c. y.	\$ 23	\$345 00	\$ 22	\$330 00	\$ 30	\$450 00
aa	Placing loam, . . . . .	2,500 c. y.	34½	862 50	32	800 00	50	1,250 00
b	Sodding, . . . . .	3,000 c. y.	46	1,380 00	35	1,050 00	60	1,800 00
c	Excavation, . . . . .	4,500 c. y.	52	2,340 00	43	1,935 00	70	3,150 00
cc	Additional haul for 100 ft., . . .	100 c. y.	01	1 00	01	1 00	05	5 00
d	Rock excavation, . . . . .	50 c. y.	1 15	57 50	70	35 00	1 00	50 00
e	Puddle, . . . . .	125 c. y.	3 16	395 00	2 00	250 00	3 00	375 00
f	Broken stone, . . . . .	150 c. y.	2 88	432 00	2 50	375 00	4 00	600 00
g	Permanent timber, . . . . .	10 M.ft. B.M.	46 00	460 00	38 50	385 00	30 00	300 00
h	Portland cement, . . . . .	10 bbls.	3 15	31 50	2 65	26 50	3 30	33 00
i	Concrete masonry, . . . . .	850 c. y.	6 90	5,865 00	6 25	5,312 50	8 50	7,225 00
j	Brick masonry, . . . . .	530 c. y.	17 25	9,142 50	18 00	9,540 00	15 00	7,950 00
k	Rubble stone masonry, . . . . .	3,000 c. y.	5 17	15,510 00	5 25	15,750 00	8 00	24,000 00
l	Portland cement plastering, . . .	900 sq. y.	58	522 00	33	297 00	1 00	900 00
m	Coal tar coating, . . . . .	2,200 sq. y.	23	506 00	10	220 00	50	1,100 00
n	Granite coping, . . . . .	40 l. ft.	3 45	138 00	2 85	114 00	2 00	80 00
2n	Granite edge stones, . . . . .	580 l. ft.	1 75	1,015 00	2 60	1,508 00	2 35	1,363 00
3n	Granite steps, . . . . .	30 l. ft.	17 25	517 50	12 85	385 50	12 00	360 00
4n	Granite trimmings, . . . . .	6 c. y.	28 75	172 50	44 00	264 00	30 00	180 00
5n	Granite blocks, . . . . .	5 c. y.	17 25	86 25	15 00	75 00	20 00	100 00
o	Add. price for Am.cem. mortar, 1to1,	20 c. y.	86	17 20	78	15 60	1 00	20 00
p	“ “ Portland “ “	250 c. y.	2 00	500 00	1 60	400 00	3 00	750 00
2p	“ “ “ “ 1to2,	250 c. y.	1 15	287 50	1 06	265 00	1 50	375 00
3p	“ “ “ “ 1to3,	50 c. y.	87	43 50	78	39 00	1 00	50 00
q	Drainage tiles, . . . . .	2,100 l. ft.	09	189 00	07	147 00	25	525 00
r	Laying 24 in. water pipes, . . .	100 l. ft.	58	58 00	88	88 00	40	40 00
2r	“ 20 “ “ “ . . .	200 l. ft.	57	114 00	62	124 00	30	60 00
3r	“ 12 “ “ “ . . .	40 l. ft.	57	22 80	40	16 00	25	10 00
s	Setting iron work in gate chamber,	1	575 00	575 00	200 00	200 00	100 00	100 00
Totals, . . . . .				\$41,586 25		\$39,948 10		\$53,201 00



## Masonry Reservoir, Received May 16th, 1890.

Howard, Coon & Co., Boston.		Smith, Mahoney & Dorman, Lawrence.		W. H. Mague, Newton.		George M. Atkins & Co., Palmer.		John H. Leavitt, Boston.		D. Henry Cram, Boston.	
\$ 25	\$375 00	\$ 50	\$ 750 00	\$ 25	\$375 00	\$ 50	\$750 00	\$ 25	\$375 00	\$ 24	\$360 00
40	1,000 00	75	1,875 00	30	750 00	50	1,250 00	29	725 00	30	750 00
45	1,350 00	75	2,250 00	72	2,160 00	40	1,200 00	38	1,140 00	75	2,250 00
60	2,700 00	75	3,375 00	53	2,385 00	55	2,475 00	43	1,935 00	57	2,565 00
05	5 00	15	15 00	02	2 00	01	1 00	01	1 00	01	1 00
2 75	137 50	2 50	125 00	2 00	100 00	1 00	50 00	1 50	75 00	2 50	125 00
4 50	562 50	3 25	406 25	3 50	437 50	1 00	125 00	3 00	375 00	4 75	593 75
3 50	525 00	5 00	750 00	3 50	525 00	3 00	450 00	3 95	592 50	4 00	600 00
45 00	450 00	37 50	375 00	35 00	350 00	30 00	300 00	30 00	300 00	35 00	350 00
3 50	35 00	3 25	32 50	2 75	27 50	3 50	35 00	3 00	30 00	3 10	31 00
6 75	5,737 50	7 50	6,375 00	4 85	4,122 50	6 00	5,100 00	6 25	5,312 50	5 75	4,887 50
16 00	8,480 00	32 50	17,225 00	14 25	7,552 50	12 00	6,360 00	15 50	8,215 00	14 75	7,817 50
6 40	19,200 00	8 50	25,500 00	5 63	16,890 00	5 85	17,550 00	5 35	16,050 00	5 50	16,500 00
1 25	1,125 00	50	450 00	27	243 00	40	360 00	50	450 00	40	360 00
23	506 00	25	550 00	22	484 00	03	66	10	220 00	23	506 00
2 15	86 00	6 25	250 00	2 23	89 20	3 00	120 00	3 00	120 00	2 95	118 00
2 45	1,421 00	4 00	2,320 00	2 75	1,595 00	2 00	1,160 00	75	435 00	1 98	1,148 40
12 00	360 00	18 75	562 50	12 85	385 50	13 00	390 00	8 00	240 00	14 90	447 00
37 00	222 00	50 00	300 00	38 33	229 98	50 00	300 00	20 00	120 00	56 66	339 96
37 00	185 00	35 00	175 00	38 50	192 50	25 00	125 00	20 00	100 00	54 00	270 00
1 60	32 00	1 87	37 40	35	7 00	75	15 00	1 00	20 00	15	3 00
5 80	1,450 00	4 00	1,000 00	75	187 50	2 50	625 00	1 00	250 00	75	187 50
3 00	750 00	2 50	625 00	60	150 00	2 00	500 00	1 00	250 00	50	125 00
2 00	100 00	2 25	112 50	40	20 00	1 50	75 00	80	40 00	40	20 00
10	210 00	20	420 00	06	126 00	15	315 00	04	84 00	15	315 00
50	50 00	44	44 00	60	60 00	40	40 00	40	40 00	1 05	105 00
40	80 00	40	80 00	50	100 00	30	60 00	37	74 00	92	184 00
30	12 00	25	10 00	25	10 00	20	8 00	30	12 00	65	26 00
260 00	200 00	500 00	500 00	350 00	350 00	200 00	200 00	100 00	100 00	450 00	450 00
\$47,316 50		\$65,490 15		\$39,906 68		\$40,005 00		\$37,681 00		\$41,435 61	

The reservoir is substantially a rectangular chamber 125 feet wide, by 172 1-4 feet long, and fifteen feet six inches deep, with rubble masonry walls, and an arched brick covering. At the northwest corner is located the gate-chamber, which is circular, thirty feet inside diameter, and cuts off this corner of the reservoir. The ultimate design is to have this gate-chamber form the centre of a four sectioned reservoir, of which the reservoir now building would be the southeast quarter. All the water mains for inlet and outlet are brought to this central chamber, in which are located all the gates for regulating the flow of the water into or out of any one of each of the four sections, and have an ultimate storage capacity of about 10,000,000 gallons. This chamber is built with extra thick walls, so as to form a foundation for the high-service stand pipe, recommended to be built later, in the report to the City Council made in December, 1889, for increasing the efficiency of the fire protection in the upper levels of the city.

The location of the reservoir on the hill top was selected in such a way that all the foundations and the bottom of the reservoir should everywhere be on solid ground. The bottom of the reservoir being about grade 305, it is in all cases inside the 305 contour of the hill.

The walls of the reservoir are founded on hard pan at grade 302, being seven feet two inches, to seven feet ten inches thick for a height of four feet, thence narrowing to a thickness of from two feet six inches, to five feet two inches on top. The walls on the north and west sides, which will eventually form one side of the other sections of the large reservoir, have been built with a double face and a batter of one in twelve on each side. The east and south walls have been faced and battered on the inside only, and stepped off on the outside. The circular walls of the gate-chamber have been carried up double-faced and plumb on both sides seven feet six inches thick. All these walls are

built of Roxbury pudding stone from the local quarries, laid in American cement mortar.

The covering of the reservoir is formed by a series of arches of four inch brick work, covered with four inches of Portland concrete.

These arches are supported on lines of brick piers connected by brick lintels, the outer edge bearing on the end walls. The brick piers are twenty inches by twenty inches, set eleven feet eight inches on centres each way, and are started on masonry foundations three feet square and three feet deep; all laid in American cement mortar. The arches are laid in Portland cement mortar. All the arches have ten feet span and ten inch rise. All the walls are to receive a coating of Portland cement mortar one-half inch thick and finished off smooth.

The high water line, which is at grade 320, is the top of the lintel arches.

At the center of each line of arches is located a twenty-four inch cast iron ventilator with a solid cover, and a series of slotted vertical openings to admit a free circulation of air, without admitting direct light.

The bottom of the reservoir, which is a compact hard pan, is to be finished off with four inches of cement concrete, rounded up to the walls on all sides, and graded down to the waste outlet.

The sides of the reservoir are to be protected by gravel banks well packed down, and graded off on a slope of two to one on the east and south, and one and one-half to one on the north and west, which banks will have to be removed when the other sections are built. The slopes of the banks are well loamed and sodded, and the tops are to be finished off with a gravel walk six feet wide all around the reservoir.

The top of the reservoir above the concrete is to receive two feet of loam to be grassed over. A granite edge stone is to be set all around the edge of the loam to divide it from

the gravel walk. Tile drains are to be run over the haunches of the arches to carry off any extra rain that may percolate through the loam above.

In this manner it is expected that the water in the reservoir will be kept at a fairly even temperature throughout the year, it will not freeze in winter, nor will it be heated in summer, and the light being kept from it, the growths usual to ground water exposed to the light and air in summer will be wholly prevented.

As already stated the supply to the reservoir is through the gate-chamber. For this purpose a twenty-four inch cast iron main has been laid from the gate-chamber to beyond the foot of the bank of the future sections of the reservoir on the west side. This will be prolonged in the spring by a twenty inch main to connect with the present main on Ward street. If at any future time it should become necessary to increase this to twenty-four inches, it will not be necessary to interfere with that portion embraced within the lines of the reservoir.

At the gate-chamber the force main is carried up some five feet by means of a Y branch and terminates in the bottom of a steel distributing tank twelve feet high and seven feet six inches in diameter, enamelled inside, situated in the centre of the chamber on a brick and masonry foundation. The water is allowed to rise in this tank to near high water line, and then flows into the reservoir through a twenty-four inch gate, and a line of pipe carried down to and along the bottom of the reservoir to the middle, where it flows out through a vertical one-fourth turn globe special.

When the reservoir is full to the high water mark (320), it will flow over a wier near the top of the steel distributing tank, down through a twenty-four inch waste pipe, which has been laid below the force main, in the same trench and bedded in concrete to prevent all settlement of the main. This waste pipe is to be continued by a twenty inch pipe,

and connected to the present reservoir, so that the surplus water, if any is pumped, may not be lost. There will also be in this trench a waste pipe of smaller size to carry off any washings of the reservoir into the nearest drain.

The water is taken from the reservoir near the bottom close to the gate chamber, through a line of twenty-four inch pipe and globe specials, and a check valve, back into the force main at the Y branch before mentioned. A twenty inch geared gate controls this flow from the reservoir.

All this piping is laid symmetrically on either side of the gate-chamber, and carried through the walls, so that when the future sections are built, they may be directly connected with the system, by simply inserting the necessary gates. One single check valve controls the whole. Any sections can then be connected with the distributing or force main, or with one of the other sections.

There is also a twelve inch connection from the reservoir into the twenty-four inch waste pipe, to be used in cleaning out the reservoir after it has been drawn down through the distributing gate. This is controlled by a twelve inch gate in the gate-chamber, and the connections are duplicated for the other sections.

The bottom of the gate-chamber is to be concreted, and a separate six inch drain pipe has been provided to carry off any leakage that may occur or water from washings.

Access will be had to the gate-chamber at the surface of the ground through a four foot doorway and a flight of steps, over the location of the force main. The general embankment around the reservoir will be continued around the gate-chamber, and cut off by wing walls either side of the doorway, which will be finished off in granite.

A flight of granite steps on the south side of the doorway will give access to the walk on the top of the bank. A similar but longer flight will give access to the walk on the east side of the reservoir.

The top of the gate chamber will be floored over, portions of the flooring being set with glass for the admission of light. It is also intended to have the central portion of the floor over the tank made so as to open and allow a view of the water rising up from the main. Probably a structure some twenty-five or thirty feet high will be erected over the chamber that can be used as a point of observation, and eventually form the base of the stand pipe tower.

The top of the reservoir being at grade 325, a very extended and fine view of the surrounding country and the harbor can already be had from the top of the banks.

When the time comes to put in the stand pipe, it is the intention that all the gates, etc., to control it shall also be located in this chamber.

Assistants from this office were detailed to look after the work, acting in the following capacities :

I. W. Hastings, resident engineer.

H. H. Applin, rodman and inspector.

G. A. Harris, rodman and inspector.



## ASSESSORS.

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It has been evident to the Assessors for several years that a number of errors existed in the areas upon which they were basing their valuation of property. Some of these errors had arisen from clerical errors in copying from one year to another, and others had arisen from errors made many years ago in estimating areas of large unsurveyed tracts of land. These errors had not caused much trouble or become apparent until the land was cut up into lots, or until portions of it were sold, and then it became evident that the balance remaining upon the Assessors' books did not correspond with the land. So many of these errors had been discovered and corrected, that a feeling of uncertainty existed as to the correctness of the record of the remaining areas. It was decided to use the block system and to begin work on Wards 3 and 4. Owing to the limited time after the appropriation was made, the work was not fully completed in these wards, but enough was developed to show that the work had been undertaken none too soon, and changes were necessary, either increasing or diminishing a greater portion of the areas. A complete survey of these wards, showing all the fences and division lines was made. These surveys were plotted on a scale of forty feet to an inch on large district sheets five feet wide and from ten to fourteen feet in length.

It was then necessary from land plans, deeds, etc., to determine the location of divisions where no apparent line

existed on the ground. The areas were then scaled carefully and checked. Small plans were made on a scale of 200 feet to an inch for use of the Assessors in the field, showing the area of each lot. An appropriation has been made to complete this work next year, and to complete Ward 2 in the same manner. Next year the large district sheets will be traced on bond paper sheets, twenty-one inches by thirty-three inches, the districts comprising the large lots, farms, etc., will be reduced to a scale of eighty feet to an inch, and these tracings will be filed in the office of the Assessors, and corrected and perfected from year to year.

The system of blocking decided upon by the Assessors is as follows :

Each ward is divided into ten sections, and these sections will be numbered to correspond to the ward, viz : Sections 50 to 59 in Ward 5, and so on, the number of the section immediately showing the number of the ward. The section lines will follow the principal streets. These sections will be divided into blocks, each block being bounded by streets, and these blocks will be numbered in their sections. When the sub-division of blocks has practically ceased, then the lots will be numbered in the blocks, and the lots will be referred to as Lot 1, Block 8, Section 29, for instance.

The Assessors having the area of each lot in the block, and the total area of the block, can immediately check the accuracy of their clerical work each year, by adding up the area of the block and noticing if it corresponds with the proper area.

It is not expected that these plans can be perfected immediately, on account of the expense attending such an attempt, but from year to year as more accurate or complete information is obtained, it will be placed upon these plans.



The special appropriation for this purpose was expended as follows :

Salaries of assistant engineers, . . . .	\$1,870 00
Car fares and incidental expenses, . . . .	39 07
Supplies, . . . . .	81 76
<hr/>	
Total, . . . . .	\$1,990 92



## SEWERAGE.

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Work in making the plans for the sewerage system for the city was continued through the year, and reports made to the committee from time to time upon such portions of the question as required their consideration. The final report made to the City Council may be found in the Appendix, and fully describes the system proposed.

### **Surface Drainage.**

The study and planning for surface drainage of the city has been carried on during the year in conjunction with that of the sewer system, but it has presented so many complex questions, more time will be required for their proper solution, and further time for making the report has been asked for. It is expected a report may be made during the coming year.



## BOARD OF HEALTH.

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The principal work undertaken for the Board of Health was the drainage of what is commonly known as the Elm Street District, West Newton. This consisted principally in the deepening and widening of a branch of Cheese Cake brook, crossing under Webster street and Oak avenue, to a point near Elm street, thereby draining a large tract of low lying land. Plans and estimates have been made for draining what is known as the Henshaw Street District and the Mague Meadows, and an appropriation for carrying out the plans for the same made by the City Council. The work will be carried out by this department during the coming year.

The services of this department have been extended to the Board of Health in the consideration of special questions coming before them from time to time as required.



## ACKNOWLEDGEMENTS.

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In conclusion I wish to extend to His Honor Mayor Burr, and to the various committees with whom the department have been brought in contact, my acknowledgements of my appreciation of their courtesy and confidence extended to me.

And to the assistants in this department, I wish to acknowledge my appreciation of the earnest work and co-operation extended to me in performing the various works coming before us to execute.

Respectfully submitted,

ALBERT F. NOYES,

*City Engineer.*





# APPENDIX.

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## ORDINANCES RELATING TO THE CITY ENGINEER'S DEPARTMENT.

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### ORDINANCE IX.

#### City Engineer.

- SECTION 1. The office of the City Engineer is hereby established. Office estab-  
lished.
- SECT. 2. He shall have charge of all the plans of the streets, drains, sewers, water-works, and lands of the city ; and shall classify them, and put them in a convenient form for reference and use. He shall make all plans, surveys, measurements and levels pertaining to the streets, drains, sewers, lands, water-works, etc., and perform such other duties properly belonging to his office, as may be required of him by the Mayor, the Board of Aldermen, or any committee of the City Council. Drains and sewers shall be constructed and repaired under his supervision and direction. Duties.  
Charge of plans.  
Make plans, surveys, etc.
- SECT. 3. He shall prepare all orders, resolves, and other papers relating to street wid- Orders, etc.

enings, extensions and alterations, which the Joint Standing Committee on Highways may require, and shall furnish the City Solicitor with descriptions of lands at his request.

Accounts.

SECT. 4. He shall keep a set of books showing all the debits and credits to every estate, the whole or a portion of which may be taken to lay out, widen, or extend a street, or which may be assessed under any betterment law; and all bills for assessments made under any betterment law shall be made out by him, and deposited with the City Treasurer for collection.

Reports.

SECT. 5. He shall annually, in the month of January, present to the City Council a report for the year ending on the last day of December preceding, giving in detail the cost of all special work of the highway department, the expense of his own department, the number of persons employed therein, and a description of the work done.

### **Building Ordinance.**

Applications to  
City Engineer  
for street lines  
and grades.

SECT. 6. No person shall proceed to erect or make alterations in the location or grade of any fence, wall, or building, a part of which is to abut upon a public street, lane, square, or alley, without first applying to the City Engineer for the lines and grade of the street, lane, square, or alley, upon which he intends to build. Such application shall be made at least fifteen days before the work is begun; and the City Engineer shall within said time furnish the required lines and grade without charge, if in his power so to do. In default of such ap-

plication the city shall be discharged from all responsibility for damages resulting from such default.

SECT. 7. Whenever the City Engineer Violation.  
ascertains that any structure has been placed in  
violation of the preceding section, he shall at  
once give notice to the Mayor and Aldermen,  
in writing, of such violation; and, upon receipt  
of such notice, the Mayor and Aldermen may  
forthwith issue an order to the party offending,  
directing that the structure be removed within  
the time therein specified; and in case of non-  
compliance, the Mayor and Aldermen shall  
direct that the incumbrance be removed at the  
expense of the delinquent.

SECT. 8. Whoever violates any provision Penalty.  
of the two preceding sections of this ordinance,  
shall be liable to a fine not exceeding twenty  
dollars.



## ORDINANCE RELATING TO DRAINS AND SEWERS.

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*Be it ordained by the City Council of the City of Newton, as follows :*

SECTION 1. The word "Drain" when used in the ordinances and orders, shall be construed to mean a pipe or conduit for the conveyance of storm or surface water, and the word "Sewer," when so used, shall be construed to mean a pipe or conduit, for the conveyance of house sewage and ground or subsoil water only.

SECT. 2. All common sewers, ordered by the City Council to be made, shall be built and kept in repair, under the direction of the Joint Standing Committee on Sewers, and all drains so ordered, shall be built and kept in repair, under the direction of the Committee on Highways.

SECT. 3. The City Engineer, shall, under the direction of the Committee on Sewers, have the general superintendence of all the common sewers, built or owned by the City, and of all connections of private sewers, built under the provisions of this ordinance, and the inspection thereof. He shall make plans and profiles of all main drains and common sewers, built under the direction of the Committee on Highways and the Committee on Sewers, showing their location with reference to other drains and sewers and the street lines, and showing the location of all private drains or private sewers entering them; which plans and profiles shall be filed in the office of the City Clerk, and after being so

filed, shall be deposited in the office of the City Engineer, which shall be deemed a part of the office of the City Clerk, for the keeping of said plans.

He shall keep, and whenever requested, report to either branch of the City Council, an accurate account of the cost and all other expenses upon each main drain and common sewer; and he shall, annually, in January, submit a report of all work performed during the year, ending on the last day of December preceding, and the amount of all expenditures from the appropriation for sewers.

SECT. 4. Whenever any street shall be opened for laying or repairing water or gas pipes, or for any other purposes, the work shall be executed so as not to obstruct the course, capacity or construction of a main drain or common sewer; and whenever pipes for that purpose, or any work of construction, shall be found to exist in such location so as to interfere with the main drain or common sewer, the corporation, company or person having charge of or maintaining the same, shall, on notice, at once remove, change or alter such pipe, in such manner as the City Engineer shall direct, and if they neglect or refuse so to do, said City Engineer may make such removal, change or alterations, and the cost of the same shall be paid by the said corporation, company or person.

SECT. 5. The whole of the average cost of the system of sewers (already determined and found to equal two dollars and fifty-six cents per running foot) shall be assessed according to law, provided that no estate shall be assessed until it can be drained into the sewer; and no estate shall be assessed more than once for the same benefit; if the cost of such sewers exceed the average cost hereinbefore mentioned, such excess of cost shall be borne by the city. The City Engineer shall prepare and submit to the City Council plans of the estates to be assessed, showing the owner's names, frontages and areas, together with a schedule showing the

assessments on the estates abutting and benefitted. Such assessments to be determined as follows: Four-tenths of the benefit according to the relative frontage and six-tenths according to the area of the estates within one hundred and eighty feet of the street in which the common sewer has been constructed; provided that upon corner lots, the first sixty feet of frontage upon the second street in which the sewer is constructed shall be exempt, and no area assessed upon the first street shall be assessed upon the second street. The said four-tenths having been ascertained to be sixty cents per front foot, and the said six-tenths having been ascertained to be six mills per square foot, said sums are hereby adopted as the standard rate of assessment. The amount assessed and certified by the City Council, shall be entered upon the plan prepared for assessment.

SECT. 6. All applications for the construction of private sewers and their entrance with common sewers, and for permission to enter the same, shall be in such form as the Committee on Sewers shall prescribe, and filed with the City Engineer. All such private sewers within street limits and their entrances into common sewers shall be constructed, maintained and kept in repair by the City Engineer, under the direction of the Committee on Sewers, and shall be the property of the City, and the cost thereof shall be paid by the applicants therefor, before the same are used or house connections made therewith.

The cost of all repairs made thereon shall be paid by the owner of the estate connected.

SECT. 7. No person other than the City Engineer or his employes, acting under his direction, shall construct any private sewer within street limits, or connect the same with any common sewer, or dig up any street for such purpose; any person violating this section, shall forfeit and pay a penalty of not more than twenty dollars for each offence.

SECT. 8. All applications for entering private drains

into main drains, shall be made in such form as the Committee on Highways shall prescribe, and filed with the Superintendent of Streets. No person shall enter a private drain into any main drains without a permit from the said Committee on Highways, nor without first paying such sum as the Mayor and Aldermen shall determine for the privilege.

SECT. 9. Whenever any private drain or private sewer connecting with any main drain or common sewer, shall become clogged, obstructed, broken, out of order, or detrimental to the use of said main drain or common sewer, or unfit for the purpose of drainage, the owner, agent, occupant, or person having charge of any building, yard, lot of land or other premises which are drained by said private drain or private sewer, shall, when directed by the Mayor and Aldermen, within five days after notice in writing from said Mayor and Aldermen remove, reconstruct, alter, cleanse or repair said private drain or private sewer, as the conditions thereof may require. In case of neglect or refusal to remove, reconstruct, repair, alter, or cleanse said private drain or private sewer for such space of five days, the Mayor and Aldermen shall cause the same to be removed, reconstructed, repaired, altered or cleansed, as they may deem expedient, at the expense of the owner, agent, occupant or other person, who shall also be liable to a penalty of not more than twenty dollars for such neglect or refusal.

SECT. 10. No exhaust from steam engines, and no blow off from steam boilers, shall be connected with any common or private sewer, or any main or private drain.

SECT. 11. No private sewers between the street limits and the building to be drained shall be laid except by the City Engineer, or his employes acting under his direction, or by licensed private sewer layers. Whenever it may be deemed necessary, the Mayor and Aldermen may license such private sewer layers as apply and are found competent. Said licenses shall remain in force until the first of the succeeding



April, unless sooner revoked. No such private sewer, if of vitrified pipe, shall be laid of a less size than five inches, or a greater size than six inches interior diameter ; and if of iron it shall not be of a less size than four inches, or of a greater size than five inches interior diameter, and shall be of extra heavy pipe, and all the work shall be done as directed by the City Engineer and subject to his inspection. No such private sewer shall be laid by a licensed private sewer layer, without a permit in writing from the City Engineer, and on the completion of the work, the permit shall be returned to the office of the City Engineer, indorsed by the layer of the sewer, with the statement of his proceedings thereunder. Each permit shall be subject to the provisions of this ordinance, and shall state in detail the premises to which it applies, and the time, place, manner, and construction of such entrance.

SECT. 12. Every person licensed as provided in the preceding section, shall, before performing any work by virtue of such license execute a bond to the City in the sum of two thousand dollars, with two good and sufficient sureties, to be approved by the Mayor and Aldermen, conditioned that he shall comply with the terms of the permit under which the work is performed ; that he will cause the excavations to be properly fenced along the street line ; that he will, when necessary, maintain one or more lighted lanterns in a conspicuous place over the obstructions, from twilight in the evening and through the whole night, that he will properly make all connections and joints in every private sewer constructed by him, and will leave no obstruction of any description in said private sewer ; that he will properly close up the excavation, and that he will indemnify and hold harmless the City of Newton from any damages or cost to which it may be put by reason of injuries resulting from neglect or carelessness in making or repairing such sewer, or in properly fencing or lighting any excavation or obstruction, or in performing any other work connected therewith.

SECT. 13. The crown of each sewer laid out by the City Council shall be established as the grade for drainage and sewerage for the territory for which such sewer is so laid out. The bottom of the cellar or basement cellar of every building shall be constructed at such an elevation that the private drain or private sewer from said cellar or basement cellar shall have a fall of at least one in fifty to the crown of the main drain or common sewer, unless the City Council shall otherwise permit. If any person constructs or attempts to construct or use any cellar or basement cellar in violation of this section, the City Council may order the owner or occupant of such cellar or basement cellar, so to alter and construct the same, as to conform to the requirements hereof; and if such owner or occupant fails to comply with such order within ten days after service thereof according to law, said City Council may cause the required alterations to be made therein, the expense whereof shall constitute a lien upon the land wherein such cellar or basement cellar shall be constructed, and upon the building or buildings thereon erected, and may be collected in the manner provided by law for the collection of taxes upon real estate.

SECT. 14. Section (4) four of ordinance (XVI) sixteen, relating to highway department, streets and ways, of the Municipal Register of 1883, is hereby repealed.

# SEWERS.

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## REPORT OF THE CITY ENGINEER.

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WEST NEWTON, MASS., Dec. 6, 1890.

*To the Joint Special Committee on Sewerage.*

GENTLEMEN:

In accordance with the orders of the City Government, I herewith respectfully submit plans and profiles for the drainage system of the City of Newton.

Topographical maps of the city, showing the elevation and change in the levels of all the streets, streams, brooks, etc., were made in the summer and fall of 1889, and a study for a system of sewerage and drainage was begun.

The order of the City Government directing the making of surveys, plans of land and the examination of the titles of the various estates seized in Needham and Newton, from which to obtain an additional water supply; the order for plans, contracts and specifications for extending and improving the water supply of the city; a block system for the Assessors, necessitating a complete survey of Wards Three and Four, and the current engineering work of the city, demanded all the office room, and services of such help as was available, and finding I could obtain the services of Mr. Edward A. Buss, of Boston, who was an assistant in

this office in 1874 and 1875, and assistant in charge of the pipe laying, during the construction of the water works in 1876 and 1877, and afterwards as assistant for Mr. Edward Sawyer, performing work upon the plans for the system of sewerage for the city, as reported upon by the Sewerage Commissioners in 1878, I deemed the best interests of the city could be served by placing a portion of the work in his hands. He being thoroughly familiar with the topography of the city, an engineer of excellent judgment and a rapid workman, I feel that better results have been thus obtained than in any other way available.

Profiles of all the streets and brooks have been made on a reduced scale and compiled in a compact form for ready reference. The lines for the routes of the sewers and drains have been laid down on the plans, their grades shown on the profiles, and their proper size has been estimated.

In order to get the best results I have from time to time consulted with Mr. Rudolph Hering, civil engineer of New York, and Mr. Eliot C. Clarke of Boston, upon certain initial points upon which the engineering profession still differ in opinion as to the best practice.

Before describing the system proposed, I take the liberty to refer to the methods of drainage usually adopted; which may be sub-divided, or classed as surface, house and sub-soil drainage. Surface drainage should provide ample channels for taking the water, which falls upon the surface of the ground, thereby preventing the flooding of land upon which dwellings have been built, and for draining lands which would otherwise be wet and unhealthy. It should also provide for taking the water by under ground channels, from the streets at frequent intervals, thereby preventing the excessive washing of the surface and effecting a saving in the cost of their maintenance.

House drainage, or what is commonly spoken of as sewerage, should provide for taking all waste or drainage

from the buildings and conveying it rapidly to some point of discharge before putrification has taken place.

Sub-soil drainage should provide channels for conveying and lowering the level of the ground water, below that of the basement of the buildings, thereby preventing the annoyance of wet basements, and by the presence of air in the soil accomplishing its purification, and increasing the healthfulness of the dwelling houses.

In compactly built cities, located near large bodies of water into which the sewage can be discharged by gravity and without being treated, all three methods of drainage can usually be best accomplished by one set of covered channels or sewers. In sparsely populated districts, where the volume of sewage to be provided for is small, or where it has to be treated or purified before its final discharge, or where the surface water can be readily discharged into local streams, the house sewage should usually be taken in sewers separate from the surface drains.

The question of the method of disposal and collection of the house sewage of the City of Newton has been settled by the passage of the chapter 430 of the Acts of the State Legislature of 1889, (see Appendix A), which created the Metropolitan Drainage Commission and provides for the construction of an intercepting sewer, to be known as the Metropolitan sewer, from the Waltham line through Newton nearly parallel with the Charles river, and connecting with the main intercepting sewer of the City of Boston.

It is intended to take merely the domestic sewage which will be discharged in deep water off Moon island, in Boston harbor, and is designed of a size to provide for a maximum discharge of 15 96-100 cubic feet per second from the City of Newton.

On account of the probability of having to pay for the maintenance of said intercepting sewer in proportion to the amount of sewage discharged into it, and of the liability of

reaching the limit of the capacity of the sewer at an earlier date than it was designed for, it is desirable to prevent any excess of water from entering the sewer, beyond what is necessary for flushing it.

In many portions of the city the water is retained in the ground at so high a level as to cause inconvenience and render many of the houses unhealthy and damp from the presence of several inches or feet of water in their cellar. In order to get the full benefit of the sewerage system it is imperative that this ground water should be taken away. This is usually accomplished by building the storm water or surface water sewers at a depth below the level of the bottom of the cellar to be drained, or by laying tile pipe parallel with the house sewers and connecting them with it at convenient points. Allowing the ground water to enter direct into the house sewer would tend at times to surcharge it, or render necessary the construction of a larger sewer than would be otherwise required. It would not serve to flush it at such times as would be necessary, and would largely increase the cost of pumping the sewage, which would be an element of cost annually assessed upon the city.

The extra cost of constructing a storm water or surface drain in all of the streets and at such a depth as would be necessary to drain the basement of all of the houses, would be in excess of the benefit thereby derived.

The plan which I herewith submit provides for the construction of a sub-soil drain immediately below the proposed house sewer which will have branches from which a sub-soil drain can be laid to the house at the same time the connection with the sewer is made. These sub-soil drains being laid with open joints will take the ground water along the line of the sewer, and will reduce to a certain extent the cost of the construction of said sewer, rendering possible the construction of a smaller sewer by preventing the infiltration of ground water. They can be brought to the surface and



connected with the surface drain or discharged into brooks at such points as the slope will warrant.

The outlet provided for the sewage by the Metropolitan Commission will meet the requirements of the city for many years, but must ultimately be supplemented by the high level system (see report of Eliot C. Clarke on main drainage works of the City of Boston, page 23,) or a secondary low level intercepting sewer.

Anticipating the possible construction of a high level intercepting sewer at some future date, the plan proposed shows the sewer pipes in two colors. The blue color indicating the low level system and the red color the high level system.

The two systems have cross connections of a size large enough for the flow, until the high level system is needed, when an intercepting sewer to be constructed near the main line of the Boston & Albany railroad, and through Washington street and Church street will relieve the low level system and carry the sewage to the high level intercepting sewer.

Except in the districts which must be immediately sewered the plan shows the proper size of the sewers in each street by full red or blue lines, and their connections with other portions of the system through the valleys, by dotted lines as indicating the most desirable route and locations for new streets. In the districts which must be immediately sewered the locations are fixed upon subject possibly to such slight modifications as the settlement for land damages may justify.

While the plan herewith submitted provides for sewers in nearly all of the streets within the drainage limits, it will undoubtedly be a number of years before it will be necessary to construct many portions of the system. The growth of the city is so rapid that new routes are being opened up, so that the system should be constantly studied and revised as

the work progresses, in order to obtain the most satisfactory results with the least expenditure of money.

The value obtained by such a study will be greatest in the final selection of the routes of the sewers connecting the various populated areas, but the territory between these, being for the most part only partially improved, the most desirable routes for the sewers are often through private property, and if constructed at once the land damages for right of way might be greater than the saving in excavation and other expenses through the existing streets. This choice of route can best be decided when the date of construction is determined.

A study of the topography of the city shows that practicable routes can be obtained, by which the sewage can be conveyed by gravity to the Metropolitan intercepting sewer from nearly the whole area, with the exception of from a portion of land south of Kenrick street, east of Waverley avenue and South street, and the lower portion of the northeast slope of Chestnut Hill, which can be more economically drained into sewers laid through the City of Boston. A small section of the southeast part of the Oak Hill district, can be best drained through either Brookline or West Roxbury.

There are also a few sections of very small area where the removal of the sewage by gravity would involve the lowering of a long and expensive main line, which would be below the permanent level of the ground water, and it will be more economical to install and maintain an electric motor or small water motor which can be so constructed that by a loss of pressure in the city main the water used can pump the sewage into the main sewer. This is the method of treatment recommended for the section west of the railroad at Concord street and Pine Grove station at Newton Lower Falls, and may be adopted to advantage in one or two other places.



The plan submitted provides for three connections with the Metropolitan intercepting sewer. One near the mouth of Hyde's (sometimes known as Lemons brook), and provides for taking the sewage from that portion of Wards One and Seven, east of Boyd's pond, Jewett street, Walnut park and Bellevue street, and north of Lombard, Sargent, Cotton and Ward streets. The second connection is designed to connect at California street at the intersection of Crescent street, and provides for taking the sewage from the areas drained by Laundry, Cold Spring and Hammonds brooks. The third connection is designed to connect near the mouth of Cheese Cake brook, and provides for taking the sewage from the area drained by Cheese Cake brook, the westerly slope shedding into the Charles river and the drainage of Sucker brook and its branches.

These will be known respectively as the Hyde brook, Crescent street and Cheese Cake brook outlets, and provides for taking the sewage from the following areas :

Hyde brook, low level system,	62 A., high level, 470 A.
Crescent street, low level system,	330 A., high level, 2270 A.
Cheese Cake brook, low level system,	2000 A., high level, 2970 A.
Making a total area, low level system,	<hr/> 2392 acres, high level, 5710 A.

Or about 8102 acres in the two systems.

### Size of the Sewers.

The size of the sewers are determined by estimating the maximum number of population to be provided for within the limits of time for which the sewers are designed, the amount of sewage or waste to be allowed for each person per day, the portion of the day during which the greatest proportion of the sewage is discharged, and the proportion of the sewer it is desirable to fill.

At the present time the average number of people in the sewer district is a fraction less than three persons per acre. The maximum number of persons living at the present

time on any single acre, I estimate to be about thirty, while the average for any considerable area, to be from ten to fifteen per acre. Having the example of the growth of other places to form a basis for estimate, we have assumed for that portion of the city, north of a line one-half of a mile south of the main line, and for the portion one-third of a mile wide on each side of the Highlands and Circuit division of the Boston and Albany railroad, a maximum population of sixty persons per acre, and for the balance of the sewer area a maximum population of forty persons per acre. From gaugings made in other cities of the volume of sewage flowing in a sewer at different portions of the day, it has been found that about one-half of the daily discharge is made in six hours. The record of the amount of water used per person, which approximates closely to the amount of sewage to be provided for, has been found to be about fifty gallons, or about seven cubic feet per day.

It has been further found that in order to provide for any unusual conditions of discharge the sewer should be designed of a size to take the maximum flow when one-half full.

From the above the following rule would be deduced: Estimate of sufficient size to carry one-half of seven cubic feet of sewage for each person in six hours, with the sewer flowing one half-full.

This rule applied to the whole city would require the construction of trunk sewers to the Cheese Cake brook outlet to provide for a population of 238,000; and the Crescent street outlet for 140,000, which is manifestly far in excess of what the population of the city can be during the life of any sewer system which can be constructed at the present time, although there is little doubt but what certain limited areas will reach the maximum density of population.

Were it not for the loss in the shape of interest upon any expenditure made to-day in excess of the requirements

for a certain limited number of years, it would be advisable to construct the sewers of the full size once for all time, but when we consider that a dollar saved in the cost of construction, with interest at 4 per cent., will permit the expenditure of \$2.00 at the end of 17 67-100 years, \$3.00 at the end of 23 years, \$4.00 at the end of 33 34-100 years and \$5.00 at the end of 41 years, we can see that on the large sizes, true economy requires a temporary construction of small size, so long as provision is made for an ample system in the future without unnecessary changes.

For this reason, after consultation, I would recommend for a most part the construction of the sewers up to the full theoretical size until they reach thirteen inches in diameter, and in a number of cases where the sections are developing rapidly; I have followed the rule even further.

As soon as I have departed from the rule, I have done either one or two things. Either provided a sewer which will meet the requirements for the next forty years, or have put in simply a small line at present, depending upon new constructions through streets which will be laid out in all probability before the demands exceed the capacity of the present construction, so that the plans present incongruities if viewed from a theoretical stand-point, or if regarded as a final layout independent of new lines through new streets.

The minimum size sewer is recommended to be six inches in diameter, to be used only where the grade is four feet or over per one hundred feet.

At points where the proposed sewer crosses the location of the Boston and Albany railroad, an increased slope is allowed so that in case the final plan for abolishing the grade crossings of the streets and the railroad, contemplate the lowering of the track of the railroad below the regular grade of the sewer, the sewage can still be carried across the location by means of an inverted syphon, a plan often adopted in other cities for meeting similar conditions.

### **Depth of Sewers.**

Except to meet exceptional cases as noted above, a sewer should be laid on a regular slope, to give a velocity to the sewage flowing through it, sufficient to carry away everything entering it.

At the present time there are laid in most of the streets, gas pipes from three to four feet deep and water pipes from five to six and one-half feet deep. In many of the streets a surface drain is either already laid or will soon be required, which, to avoid interference with the water and gas pipes, would ordinarily be laid just below them, or from six to eight feet deep. I have therefore designed the sewers to be about eight and one-half feet from the surface of the street to their crown, except where the gradients determine otherwise or from the slope of abutting property they can be laid at less depth.

Where sub-soil drains are necessary they should be laid from four to six inches below the house sewer.

### **Construction.**

The efficiency of small pipe sewers, designed to take only house sewage, depends upon the care used in their construction and maintenance. Every precaution must be taken to insure perfect alignment both vertically and horizontally.

I would recommend in order that the sewer can at all times be readily inspected that manholes be placed at the intersection of all sewers, and at all changes in direction except under certain conditions; in cases where there are sharp grades and large sewers they can at times be omitted with economy.

The ends of all sewers at summits or at all points which would otherwise be ends, should be connected into one manhole, where the sewer can be flushed in both directions with the same operation.

### **Flushing or Cleaning.**

As already stated pipe sewers require constant care, inspection and cleaning.

One of the best methods of cleaning is by suddenly introducing a body of water large enough to nearly fill the same, at one or more points, and by the increased velocity taking away all material which would otherwise become a source of annoyance or an obstruction.

This body of water may be introduced into the sewer from either flush tanks, watering carts or hydrants through a manhole, or connection with some water course. They may be flushed by placing a slide over the lower end of the sewer in a manhole and retain the sewage in the upper portion of the sewer until it has accumulated volume enough to fill it.

By the plan proposed of connecting all ends, the flow in one sewer can be turned into another, thereby increasing its volume. The plan contemplates the use of all of these means of flushing, and of taking into the sewer at points where it may be desirable a certain amount of rain water.

### **Ventilation.**

The methods usually adopted for ventilating sewers are through the perforations in the covers of the manholes, by connections with hot air shafts specially constructed for that purpose, and through the open end of the soil pipe or drain connecting the houses with the sewer.

It is necessary in order to prevent the generation of gas in the sewer to an undesirable degree of density, to have a constant current of air passing through them. In order to insure this there should be numerous openings for the admission of fresh air and for its egress after passing through the sewers.

The more frequent these openings, the less distance a given quantity of air will have to pass through the sewer,

hence the greater its power for maintaining a high degree of cleanliness.

It has been found by experiment that where a constant current of air passes through a soil pipe or sewer, their walls or sides are dry and clean, except immediately after a discharge into them, or in the case of a sewer, the section above the flow line.

When they are not well ventilated, it has been found that the walls become covered with a slimy, decomposing substance generating large volumes of sewer gas.

I would recommend therefore that where the plumbing of a house is ventilated by extending the soil pipe above the roof of the building, when the connection is made with the street sewer, the running trap and fresh air inlet be omitted. That connections with any air shaft be made where practicable, and that manholes be provided with perforated covers.

### **Description of System.**

As already stated the outlet for the sewage of the city is the trunk sewer provided by the Metropolitan Sewer Commissioners and is indicated on the map by three dotted blue lines. The main is to be four feet and six inches in diameter up to Crescent street and from there to the Waltham line three feet and nine inches.

The future development of the district which will be sewered by the Hyde brook outlet is so fully determined, and the total area being comparatively small, the route and dimensions of the sewer can be designed and the system built to the final diameter required without unreasonable outlay.

The second entrance, that at Crescent street, receives the sewage from Wards Two, Five and Six, and drains an area of about 2500 acres, 2270 of which will finally be diverted to the high level system. As this area will ultimately require a main of about forty-eight inches in diameter, it was deemed advisable to lay a main twenty-four inches in diame-



ter, which can be supplemented in the future by a larger main built along some of the streets which will be laid out in this section, their dimensions ranging with the date of their construction.

The routes through the upper portion of the section will depend upon the construction of the streets in the development of the property, economy calling for following the line of the valleys as closely as the layout of the streets will permit.

The twenty-four inch pipe is indicated as far as Centre street, Ward Six. Above this point a twenty inch pipe is shown which can be placed on a sufficient grade to insure the disposal of the sewage until paralleled through some of the streets that will be laid out.

The route for the Hammonds brook section will depend upon the layout of streets, and the size would be varied to suit the growth of population as determined upon when the sewers are constructed.

The third entrance, at Cheese Cake brook, receives the sewage of Wards Three and Four and parts of Five and Six. The sewage from this section will nearly all remain in the low level system, as it drains the section which is most difficult to reach with a high level sewer.

The thirty inch main shown for this section will deliver sewage equal to the provisions made in the Metropolitan intercepting sewer for the City of Newton, and will cover the requirements of the section until long after the high level sewer is needed for the other parts of the city. The size of the sewer is reduced to twenty-four inches at Wales street, and it is extended of this size to the Upper Falls, where it is available for such portion of the territory south of the railroad as may be found desirable to enter into it. The sewage from this section can be carried through this line along Charles river, or can be syphoned or pumped into the Cold Spring area and carried to the high level system.

The location of this sewer through West Newton and Auburndale admits of a choice of routes presenting nearly equal advantages, but one the suggested seems to best fulfil the requirements, if not too expensive to procure the rights of way.

A large amount can be saved in the construction of this sewer by placing the invert slightly above the level of Charles river at Lexington street, and rising with a uniform grade to the level of the water above the upper dam at the Lower Falls. This requires the providing for a small section by pumping, but the saving would be very decided and it might not be necessary to install the pumping plant for a number of years after the sewer was needed. In the same way the portion between the Lower Falls and Upper Falls can be placed above the river without impairing the efficiency of the system.

The portion of the city near Dedham will probably not require sewerage for many years, and the mains as constructed can receive this section by either gravity or pumping as found desirable, depending upon the route adopted.

In connection with the construction of the sewerage system, provision should be made for the removal of the sub-soil water by means of pipes placed in the trench below the sewers and laid with open joints for collecting ground water as already described.

### **Estimate of Cost.**

An Act of the Legislature creating the Metropolitan Drainage Commission provides that the payment of the cost of constructing the Metropolitan Sewers be made by the issuance of State Metropolitan Sewerage bonds, payable in forty years, bearing interest at the rate of 3 per cent. per annum.

The first issue of these bonds have been sold at a premium, which makes the net interest 2 7-8 per cent. per annum.



The part of the interest, sinking fund, and cost of maintenance which each city and town will bear, will be determined by a Commission appointed by the Supreme Court. A new Commission will be appointed every five years, when a new apportionment will be made according to the relative increase in population of the various cities and towns of the district.

It is generally conceded that the equitable method of paying the interest, sinking fund and cost of maintenance will be in proportion to the population, and that the cost of pumping be in proportion to the amount of sewage discharged for each municipality into the sewer.

Upon a basis of population as returned by the United States census for 1890, and upon a daily discharge of thirty gallons per person per day into the sewers, and assuming the estimated cost for constructing the Metropolitan sewers from Camden street to the Waltham line to be correct, the City of Newton would be assessed interest and sinking fund upon about \$204,000.

If the Metropolitan Drainage Commissioners decide to include in the Metropolitan District so much of the area of the City of Boston as contributes its drainage to the intercepting sewer discharging at Moon island, and assumes the cost of so much of the Boston system as would be used, the cost to be assessed upon the City of Newton would be considerably increased, but I have not the data upon which to base an estimate.

The annual cost of disposal upon the above basis would be as follows:

For interest and sinking fund at $4\frac{1}{2}$ per cent. on \$204,000.00,	\$9,180.00
For maintenance,	1,800.00
For pumping the sewage,	2,730.00
Total,	<hr/> \$13,210.00

If paid for by an annual tax levy this would represent a tax of \$0.36 1-2 per thousand dollars, based upon the pres-

ent valuation of the city. The above estimate of the amount of sewerage (thirty gallons per day per person) is the estimate of the State Board of Health.

From the experience of many cities and towns I feel that it would be safer to estimate for providing for at least fifty gallons per person per day. This would make the cost of pumping the sewerage \$4,550.00, or the total annual cost \$15,030.09, or about \$0.40 per \$1000.00 valuation.

Should the various cities and towns in the Metropolitan District increase in population proportionally, the first two items will remain unchanged, but the cost of pumping the sewage upon the basis of thirty gallons per day per person will increase about \$110.00 per year for each thousand increase in population.

The estimates of the cost of the sewer system are based upon the daily wages being paid the same as at present by the city, but applied to nine hours services. The price of materials being the same as during the past year, excepting for pipe, which has been sold at prices below what may be expected during the next few years, a strong combination usually controlling the price. I have not felt justified in estimating pipe at less than 55 per cent. off the list price.

The plan submitted provides for sewers in about 130 miles of streets, which are at the present time laid out, or planned, and are estimated to cost about \$1,755,000.

It is not expected that sewers will be required in the whole district for a period of from fifteen to twenty years.

The districts which require immediate relief are a larger portion of Wards One and Seven, and a portion of Wards Two, Three, Four, Five and Six.

The portions of Wards One and Seven designed to be sewerred through the Hyde brook outlet and apparently requiring immediate attention, comprises the accompanying schedule of streets having a total mileage of 15 36-100, rang-

ing in size from six inches to twenty inches in diameter, estimated to cost with land damages \$185,000.

As a measure of economy arrangements should be made with the authorities of the Town of Watertown for taking the drainage from the estates abutting on Boyd, Maple, Williams and Galen streets from Maple street to the town line.

To sewer the portion of Ward Two apparently needing sewers most will necessitate the construction of the twenty-four inch main sewer from California street to Mill street, and comprises the accompanying schedule of streets having a total mileage of 10 32-100, ranging in size from six inches to twenty-four inches in diameter, and estimated to cost with land damages \$165,000.

The sewerage of these two districts is as much as should be undertaken during the coming year.

The adjustment of land damages for the laying of the trunk sewer from the Cheese Cake brook outlet will affect somewhat its final location and take considerable time.

I would recommend that steps be taken the coming year to adjust them so that work upon this outlet can begin in the Spring of 1892. The main to Newton Centre cannot be made available until the Newtonville end has been constructed, which will not probably be until the Fall of 1891. I would call special attention to the importance of having streets located where it is necessary to go through private property. By this course the full value of the sewer would ordinarily be received in return for its construction and valuable tracts of land developed.

I would recommend that action be taken under authority given by the Statutes, chapter 69 of the Acts of 1878, it being "An Act to Authorize the City of Newton to establish grades for drainage and sewerage in said city." See Appendix B, and would suggest that the following section be incorporated in the sewer ordinance.

SECT.—. The bottom of the cellar or basement cellar of every building shall be constructed at such an elevation that the private drain or private sewer from said cellar or basement cellar shall have a fall of at least one in fifty to the crown of the main drain or common sewer, unless the Board of Aldermen shall otherwise permit. If any person constructs or attempts to construct or use any cellar or basement cellar in violation of this section, the Board of Aldermen may order the owner or occupant of such cellar or basement cellar so to alter and construct the same as to conform to the requirements hereof; and if such owner and occupant fails to comply with such order within ten days after service thereof according to law, said Board may cause the required alterations to be made therein, the expense whereof shall constitute a lien upon the land wherein such cellar or basement cellar shall be constructed, and upon the building or buildings thereon erected, and may be collected in the manner provided by law for the collection of taxes upon real estate.

Respectfully submitted,

ALBERT F. NOYES, *City Engineer.*

**APPENDIX A.**

(CHAP. 439, ACTS 1889.)

An Act to provide for the building, maintenance and operation of a system of sewage disposal for the Mystic and Charles river valleys.

Be it enacted, etc., as follows :

SECTION 1. The Governor, by and with the advice and consent of the council, shall appoint three able and discreet men, inhabitants of the Commonwealth, who shall constitute a board to be known as the Metropolitan Sewerage Commissioners, and who shall hold office, one for the term of five years, one for the term of four years and one for the term of three years, beginning with the first Monday in January in the year eighteen hundred and eighty-nine; and in the year eighteen hundred and ninety-two and annually thereafter the Governor shall appoint, as aforesaid, one such commissioner to hold office for the term of three years, beginning with the first Monday in January in the year of his appointment, and in case of any vacancy occurring in such board by resignation or otherwise, shall in the same manner appoint a commissioner for the residue of the term, and may in the same manner remove any commissioner. The members of said board shall receive the salary of three thousand dollars per year.

SECT. 2. Said board shall, as soon as may be after its appointment, and annually thereafter on the first Monday of February of each year, organize by the choice of one of its members as chairman, and shall at the same meeting elect a clerk, who shall not be a member of said board, and may from time to time appoint such agents, officers and servants as it may deem necessary to carry out the purposes of this act, and may determine their duties and compensation and remove the same at pleasure. Said board shall be furnished

with an office in some suitable place in the City of Boston, in which the maps, plans and documents relating to its business, and to the sewers, land and other property in its charge, and records of all doings shall be kept.

SECT. 3. Said board shall construct, maintain and operate for the cities of Boston, Cambridge, Somerville, Malden, Chelsea, Woburn, and the towns of Stoneham, Melrose, Winchester, Arlington, Belmont, Medford, Everett and Winthrop such main sewers and other works as shall be required for a system of sewage disposal for said cities and towns, and for the cities of Boston, Waltham and Newton, and the towns of Watertown and Brookline another such system, both of which systems shall be in substantial accordance with the plans reported and recommended by the State Board of Health in its report to the Legislature of eighteen hundred and eighty-nine; and for that purpose may make all contracts necessary for the construction of the sewers and works aforesaid, or may, where deemed advisable carry on such construction by day labor. Said board may from time to time contract with any other city or town for the extension thereto of either of said systems of sewage disposal, and for the reception and disposal of sewage therefrom.

SECT. 4. Said board acting on behalf of the Commonwealth may take by purchase or otherwise any lands, water-courses, rights of way or easements, and may take by purchase or otherwise, or enter and use any existing sewers or parts of sewers necessary for the carrying out under the provisions of this act of the recommendations and plans of said State Board of Health contained in its said report. When any lands, water-courses, rights of way or easements, or any sewers or parts of sewers are so taken or entered and used in any manner other than by purchase or agreement, said board shall within thirty days of said taking or entering and using, cause to be recorded in the registry of deeds for the county or district in which such lands, water-courses, rights of way



or easements, or sewers or parts of sewers lie, a description of the same as certain as is required in a common conveyance of land, with a statement of the purpose for which the same is taken or entered and used, which description shall be signed by a majority of said board; and the fee of the lands, water-courses, rights of way or easements, or sewers or parts of sewers so taken or purchased shall vest in the Commonwealth, which shall pay, in the manner hereinafter described, all damages that shall be sustained by any person or corporation by reason of such taking or entering as aforesaid. Such damages to be agreed upon by said board and the person or corporation injured; and if the parties cannot agree a jury in the superior court of the county in which the property taken or damaged is situated may be had to determine the same in the same manner as a jury is had and damages are determined in the case of persons dissatisfied with the estimate of damages sustained by the laying out of ways in the City of Boston; *provided, however*, that no suit for such damages shall be brought after the expiration of two years from the date of the recording of the taking or entering as herein required.

SECT. 5. Said board may, for the purposes aforesaid, carry and conduct any sewer by it to be made and constructed under or over any water-course, or any street, turnpike road, railroad, highway or other way in such manner as not unnecessarily to obstruct or impede travel thereon; and may enter upon and dig up any such road, street or way for the purposes of laying down sewers beneath the surface thereof and for maintaining and repairing the same; and in general may do any other acts and things necessary or convenient and proper for the purposes of this act. In entering upon and digging up any such road, street or way of public travel it shall be subject to such reasonable regulation as may be made by the mayor and aldermen, or selectmen of the cities and towns respectively wherein such works shall be performed.

SECT. 6. Whenever said board shall dig up any road, street or way, as aforesaid, it shall so far as practicable restore the same to as good order and condition as the same was in when such digging commenced. And the Commonwealth shall at all times indemnify and save harmless the several cities and towns within which such roads, streets or ways may be against all damages which may be recovered against them respectively, and shall reimburse to them all expenses which they shall incur by reason of any defect or want of repair in any road, street or way caused by the construction of any of said sewers, or by the maintaining or repairing of the same; *provided*, that said board shall have due and reasonable notice of all claims for such damages or injury, and opportunity to make a legal defense thereto.

SECT. 7. Said board may also alter or change the course of direction of any water-course, or may with the consent of the mayor and aldermen of the cities or selectmen of towns, alter or change the location or grade of any highway, townway, public street or way of travel crossed by any sewers constructed under the provisions of this act, or in which such sewers may be located.

SECT. 8. Said board shall at all times keep for each of said systems, full, accurate and separate accounts of its receipts, expenditures, disbursements, assets and liabilities, and shall include an abstract of the same in its annual report to the General Court.

SECT. 9. Any city or town, within whose limits any main sewer shall have been constructed under the provisions of this act, shall connect its local sewers with such main sewer, subject to the direction and control of said board, and any person, firm or corporation may, subject to the direction, control and regulation from time to time of said board, and subject to such terms, conditions and regulations as each city or town may prescribe, connect private drains with said main sewer.



SECT. 10. Any person or persons who shall wantonly or maliciously destroy or injure any sewer or other property, held or used by said board, by the authority and for the purposes of this act, shall forfeit and pay to the Commonwealth three times the amount of the damages that shall be assessed therefor, to be recovered by any proper action. And every such person or persons may, on indictment and conviction of either of the wanton or malicious acts aforesaid, be punished by a fine not exceeding one thousand dollars and imprisonment not exceeding one year.

SECT. 11. The State Board of Health shall, on the organization of the board created by this act, transfer and deliver over to said board all books, plans, maps, engineers' reports, instruments and other property acquired during the surveys and investigations relating to the systems of sewage disposal for the Mystic and Charles river valleys, on which the report of the said Board of Health, hereinbefore referred to, was founded.

SECT. 12. To meet the expenses incurred under the provisions of this act, the treasurer and receiver-general shall with the approval of the Governor and council issue from time to time scrip or certificates of debt, in the name and behalf of the Commonwealth and under its seal, to an amount not exceeding five million dollars, for a term not exceeding forty years. Said scrip or certificate of debt shall be issued as registered bonds or with interest coupons attached, and shall bear interest not exceeding four per cent. per annum, payable semi-annually, on the first days of March and September in each year. Such scrip or certificates of debt shall be designated on the face as the Metropolitan Sewerage Loan: shall be countersigned by the Governor, and shall be deemed a pledge of the faith and credit of the Commonwealth, redeemable at the time specified therein in the lawful money of the United States, and shall be sold and disposed of at public auction, or in such other mode, and at



such times and prices, and in such amounts and at such rate of interest not exceeding four per centum per annum as the Governor and council shall deem for the best interest of the State. The treasurer and receiver-general shall on issuing any of said scrip or certificates of debt establish a sinking fund, and apportion thereto from year to year an amount sufficient with its accumulations to extinguish the debt at maturity. But in such apportionment of a sinking fund the assessment shall be at the rate of one-eightieth part of the whole amount in each of the first ten years, one-sixtieth part in each of the second ten years, one-thirtieth part in each of the third ten years, and the remainder equally divided in the next ten years. Any premium realized in the sale of said scrip or certificates of debt shall be applied to the payment of the interest on said loan as it accrues.

SECT. 13. The supreme judicial court, sitting in equity, shall, on the application of said board after notice to each of the cities and towns hereinbefore named, appoint three commissioners, who shall not be residents of any of the cities or towns mentioned in this act, who shall, after due notice and hearing, and in such manner as they shall deem just and equitable, determine for each system the proportion in which each of the cities and towns hereinbefore named, shall annually pay money into the treasury of the Commonwealth, for the term of five years next following the year of the issue of said scrip or certificates, to meet the interest and sinking fund requirements for each of said years, as estimated by said treasurer, and to meet the cost of maintenance and operation of said system for each of said years, as estimated by the said board and certified to said treasurer, and any deficiency in the amount previously paid in, as found by said treasurer, and shall return their award into said court; and when said award shall have been accepted by said court the same shall be a final and conclusive adjudication of all the matters herein referred to said commissioners, and shall be binding on all parties.

SECT. 14. Before the expiration of said term of five years, and every five years thereafter, other commissioners, who shall not be residents of any of the cities or towns mentioned in this act, shall be appointed as aforesaid, who shall in such manner as they deem just and equitable, determine the proportion in which each of said cities and towns in each of said systems shall annually pay money into the treasury of the Commonwealth as aforesaid for the next succeeding term of five years, and shall return their award into said court, and when said award shall have been accepted by said court, the same shall be a final and conclusive adjudication of all the matters herein referred to said commissioners, and shall be binding on all parties.

SECT. 15. The amount of money required each year from each such city and town to meet the interest, sinking fund requirements and cost aforesaid for that system in which it is included for each year, and deficiency, if any, shall be estimated by said treasurer, in accordance with the proportion determined as aforesaid, and shall be included in and made a part of the sum charged to such city or town, and be assessed upon it in the apportionment and assessment of its annual state tax, and said treasurer shall in each year notify each such city and town of the amount of such assessment, which amount shall be paid by the city or town into the treasury of the Commonwealth at the time required for the payment and as a part of its state tax.

SECT. 16. The supreme judicial court shall have jurisdiction in equity to enforce the provisions of this act, and shall fix and determine the compensation of all commissioners appointed by said court under the provisions hereof.

SECT. 17. This act shall take effect upon its passage.

*(Approved June 7, 1889.)*

**APPENDIX B.**

(CHAP. 69 OF THE ACTS OF 1878.)

An act to authorize the City of Newton to establish grades for drainage and sewerage in said city.

SECTION 1. The board of aldermen of the City of Newton may from time to time establish grades for drainage and sewerage in any designated territory within said city, and after a grade has been so established no person shall construct in such territory any cellar or basement cellar of any building below such established grade, or use or occupy any cellar or basement cellar so constructed; *provided*, that said board may by license, subject to revocation at any time by them, authorize cellars to be constructed in buildings used exclusively for storage or business purposes, so much below said grade as they shall designate in said license.

SECT. 2. Said board, whenever they see cause, may change any grade already established; but such change shall not affect the right to maintain and use any cellar or basement cellar previously constructed.

SECT. 3. If any person constructs or attempts to construct or use any cellar or basement cellar in violation of the provisions of this act, said board may order the owner or occupant of such cellar or basement cellar so to alter and construct the same as to conform to the requirements hereof; and if such owner or occupant fails to comply with such order within ten days after service thereof, as is hereinafter provided, said board may cause the required alterations to be made therein, the expense whereof shall constitute a lien upon the land wherein such cellar or basement cellar shall be constructed, and upon the building or buildings thereon erected, and may be collected in the manner provided by law for the collection of taxes upon real estate. The city treasurer, in behalf of said city, may purchase such land, or such land and buildings, at any sale thereof for the enforcement of such lien.

SECT. 4. All orders under the preceding section shall be made in writing, and served upon the owners or occupants or their authorized agents as prescribed by section nine of chapter twenty-six of the General Statutes, for the service of orders of boards of health; except that the advertisement provided for in said section shall be made in one or more public newspapers, in such a manner and for such length of time as said board of aldermen may direct; and the supreme judicial court or any justice thereof, in term time or vacation, may, by injunction or other suitable process in equity, restrain any person or corporation from using or constructing any cellar or basement cellar in violation of the provisions of this act, and may enforce such provisions.

SECT. 5. This act shall take effect upon its passage.

*(Approved March 15, 1878.)*

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## APPENDIX C.

(CHAP. 147 OF THE ACTS OF 1878.)

An act concerning sewers and drains in the City of Newton.

SECTION 1. The board of aldermen of the City of Newton may, for the purpose of sewerage and drainage, take and use any stream or water-courses within the limits of said city, to take and divert the waters thereof, and devote the same to the purposes aforesaid; and may take all necessary land to alter, widen, deepen or straighten the channel of said water-courses, and remove obstructions therefrom, and may use and appropriate them, and cover, pave and enclose them in retaining walls.

SECT. 2. In taking said water-courses or lands for the purposes aforesaid, the said board of aldermen shall proceed in the manner required by law in cases where land is taken

for highways; and persons suffering damages in their property, shall have the same rights and remedies for the ascertainment and recovery of such damages as are provided by law for the ascertainment and recovery of damages for lands taken for town ways in said Newton.

SECT. 3. This act shall take effect upon its passage.

*(Approved April 17, 1878.)*

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#### APPENDIX D.

Schedule of streets in the Hyde brook drainage area in which it is desirable to begin the construction of sewers during the year 1891.

Hall street, Channing street, Thornton place, Crescent park, Pearl street (Centre to Jewett street), Waban street, Jewett street, Boyd street, Pond avenue, Winthrop avenue, Richardson street, Centre place, Jefferson street, Maple street, Bacon street, Peabody street, Thornton street, Avon place, Emerson street, North School street, Hovey street, Gardner street, Fayette street, Nonantum street, Orchard street, Hunnewell avenue, Washington street from Brighton line to Bellevue street, Grasmere street, Tremont street from Pembroke street to Park street, Belmont street, Durant street, Church street, Elmwood street, Kenrick park, Sargent street, Eldridge street, Hollis street, Wesley street, Newtonville avenue from Centre street to Howard street, Bellevue street from Centre street to Clairmont street, Mt. Ida terrace, Nonantum place, St. James street, Hunnewell terrace, Copley street, Waverley avenue, Pembroke street, Arlington street, Vernon street, Park street, Brooks street, Franklin street, Hyde avenue, Baldwin street, Centre street from Maple street to Fairmount street, Mt. Ida street, Fairmount avenue, Bennington street, Summit street, Oakland street, Maple place, Park avenue, William street, Carleton street.



**APPENDIX E.**

Schedule of streets in the Laundry brook drainage area in which it is desirable to begin the construction of sewers during the year 1891.

Waban street, Judkins street, Adams street, Jenison street, Bellevue street, Lothrop street, Clinton street from Crafts street to Central avenue, Prescott street, Central place, Turner street, Edinboro street, Washington street from Bellevue street to Lowell street, Spruce street, Howard street, Clyde street, Austin street, Otis street, Crescent street, Green street, Gardner street, Waban park, Middle street, Harvard street, Newtonville avenue from Walnut street to Lewis street, Crafts street, Central avenue, Chesley place, Court street, Walnut street from Lowell street to Mill street, Foster place, Bailey street, Washington park, Cabot street from Walnut street to Harvard street, Highland avenue, Cook street, Watertown street from Broadway to Watertown line, Bowers street, Pearl street from Jewett street to Watertown street.

## RULES AND REGULATIONS OF THE NEWTON WATER DEPARTMENT, RELATING TO THE CITY ENGINEER.

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### **Section 2. — Organization.**

1. Beside the officers of the Water Registrar and Superintendent established by ordinance, the permanent organization of the department shall be as follows:—

A Civil Engineer, an Inspector of Meters and Fixtures, a Pumping Engineer, a Fireman, a main-pipe Foreman, a service-pipe Foreman, three Teamsters, and a Clerk in the office of the Water Board. It is understood that the City Engineer is Civil Engineer of this department.

### **Section 6.-- Engineer.**

1. Upon receipt of orders therefor from the Board, the City Engineer shall, within twenty-four hours, establish lines and grades for the extension of all water-mains, and shall take such measurements of main and service pipe extensions, and their appurtenances, as will enable him to correctly locate and plat the same; he shall keep the returns from the Pumping Engineer closely posted up, and shall plat therefrom a diagram showing the engine duty.

2. He shall make a daily report to the Water Registrar of the progress and condition of the work under his charge.

3. He shall perform such other duties as the Board may from time to time by vote require of him.



CITY OF NEWTON.

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ANNUAL REPORT

OF

# THE CITY MARSHAL

FOR THE YEAR ENDING DECEMBER 31, 1890.



NEWTON UPPER FALLS:  
FANNING PRINTING CO.  
1891.



# CITY MARSHAL'S REPORT.

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OFFICE OF CITY MARSHAL, }  
West Newton, December 31, 1890. }

*To His Honor the Mayor, and the City Council of the City  
of Newton:*

I have the honor to submit for your consideration the  
seventeenth Annual Report of the Newton Police Depart-  
ment, for the year ending Dec. 31, 1890.

## Arrests.

Whole number of arrests,	.	.	.	.	.	.	830
Arrests on warrants,	.	.	.	.	.	.	254
Arrests without warrants,	.	.	.	.	.	.	576
Held for trial, . . . . .	.	.	.	.	.	.	801
Discharged on examination,	.	.	.	.	.	.	29
Males, . . . . .	.	.	.	.	.	.	791
Females, . . . . .	.	.	.	.	.	.	39
Americans, . . . . .	.	.	.	.	.	.	393
Foreigners, . . . . .	.	.	.	.	.	.	437
Residents, . . . . .	.	.	.	.	.	.	636
Non-residents, . . . . .	.	.	.	.	.	.	194
Minors, . . . . .	.	.	.	.	.	.	115

**Arrests at Each Police Station.**

Station No. 1, Newton, . . . . .	99
Station No. 2, Nonantum, . . . . .	68
Station No. 3, West Newton, . . . . .	592
Station No. 4, Newton Centre, . . . . .	71
	<hr/>
	830

**Arrests Made Each Month.**

	Males.	Females.	Total.
January, . . . . .	40	3	43
February, . . . . .	45	2	47
March, . . . . .	32	1	33
April, . . . . .	37	4	41
May, . . . . .	79	1	80
June, . . . . .	76	4	80
July, . . . . .	122	8	130
August, . . . . .	75	2	77
September, . . . . .	93	4	97
October, . . . . .	84	4	88
November, . . . . .	69	3	72
December, . . . . .	39	3	42
	<hr/>	<hr/>	<hr/>
	791	39	830

**Local Police Work.**

Newton, . . . . .	144
Nonantum, . . . . .	124
Newtonville, . . . . .	64
West Newton, . . . . .	228
Auburndale, . . . . .	65
Lower Falls, . . . . .	16
Newton Centre, . . . . .	82
Newton Highlands, . . . . .	31

Upper Falls, . . . . .	54
Waban, . . . . .	22

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### Offences for Which Arrests Were Made.

Assault, . . . . .	6
Assault and battery, . . . . .	54
Arson, . . . . .	1
Assault on officer, . . . . .	7
Accessory to arson, . . . . .	1
Burning a building, . . . . .	1
Bastardy, . . . . .	2
Breaking and entering, . . . . .	3
Contempt of Court, . . . . .	17
Common drunkard, . . . . .	2
Conveying liquor to a prisoner, . . . . .	1
Cruelty to animals, . . . . .	8
Default warrants, . . . . .	1
Disturbing the peace, . . . . .	57
Destroying public property, . . . . .	1
Destroying personal property, . . . . .	6
Drunkenness, . . . . .	435
Embezzlement, . . . . .	2
Evading car fare, . . . . .	5
Fugitive from justice, . . . . .	1
Idle and disorderly, . . . . .	1
Insane, . . . . .	10
Larceny simple, . . . . .	39
Larceny felonious, . . . . .	11
Manslaughter, . . . . .	1
Non-support of family, . . . . .	2
Obtaining money by false pretences, . . . . .	1
Profanity, . . . . .	4

Receiving stolen goods, . . . . .	2
Runaways, . . . . .	5
Refusing to assist an officer, . . . . .	2
Stubborn children, . . . . .	5
Stealing a ride, . . . . .	3
Selling tobacco to a minor, . . . . .	1
Suspicious persons, . . . . .	2
Threatening bodily harm, . . . . .	1
Tramps, . . . . .	8
Trespass, . . . . .	6
Violation of city ordinances, . . . . .	62
Violation of dog law, . . . . .	22
Violation of liquor law, . . . . .	16
Violation of railroad law, . . . . .	3
Violation of the Lord's day, . . . . .	10
Violation of Board of Health rules, . . . . .	1
Witnesses, . . . . .	1
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	830

#### **Females Were Arrested for the Following Offences.**

Assault and battery, . . . . .	5
Burning a building, . . . . .	1
Contempt of court, . . . . .	3
Coveying liquor to a prisoner, . . . . .	1
Drunkenness, . . . . .	15
Insane, . . . . .	1
Stubborn children, . . . . .	1
Violation of dog law, . . . . .	1
Violation of city ordinances, . . . . .	5
Violation of liquor law, . . . . .	6
	<hr/>
	39

**Nativity of Prisoners.**

United States, . . . . .	393
Ireland, . . . . .	318
Canada, . . . . .	50
England, . . . . .	31
Germany, . . . . .	7
Scotland, . . . . .	9
Sweden, . . . . .	2
Spain, . . . . .	1
Italy, . . . . .	19
	<hr/>
	830

**Occupation and Calling of Persons Arrested.**

Blacksmiths, . . . . .	13
Bricklayer, . . . . .	2
Bolt-maker, . . . . .	1
Box-maker, . . . . .	1
Baggage-masters, . . . . .	1
Barbers, . . . . .	2
Contractors, . . . . .	7
Caterers, . . . . .	2
Cooks, . . . . .	3
Confectioners, . . . . .	2
Coachmen, . . . . .	3
Carpenters, . . . . .	36
Clerks, . . . . .	28
Domestics, . . . . .	6
Dyer, . . . . .	1
Dentist, . . . . .	1
Engineers, . . . . .	3
Expressmen, . . . . .	4
Farmers, . . . . .	10
Florists, . . . . .	3

Foreman, . . . . .	1
Gilders, . . . . .	2
Grocer, . . . . .	1
Gardeners, . . . . .	2
Housekeepers, . . . . .	33
Hostlers, . . . . .	10
Hack-drivers, . . . . .	2
Harness-makers, . . . . .	2
Hatters, . . . . .	2
Horse-dealer, . . . . .	3
Horse-clippers, . . . . .	1
Jewellers, . . . . .	3
Junk-dealers, . . . . .	3
Laborers, . . . . .	399
Lathers, . . . . .	5
Line-man, . . . . .	1
Machinists, . . . . .	17
Marble-cutter, . . . . .	1
Miner, . . . . .	1
Merchants, . . . . .	2
Masons, . . . . .	30
Moulders, . . . . .	7
Mill-hands, . . . . .	8
Printer, . . . . .	1
Paper-makers, . . . . .	2
Professor, . . . . .	1
Paper-hanger, . . . . .	1
Plumbers, . . . . .	8
Peddlers, . . . . .	8
Painters, . . . . .	20
Polishers, . . . . .	3
Rag-picker, . . . . .	1
Railroad-man, . . . . .	1
Rubber-workers, . . . . .	5
Sash-maker, . . . . .	1



Student, . . . . .	1
Shoe-manufacturer, . . . . .	1
Salesmen, . . . . .	2
Shoemakers, . . . . .	11
Scholars, . . . . .	38
Spinners, . . . . .	3
Slater, . . . . .	1
Stone-masons, . . . . .	8
Teamsters, . . . . .	28
Tinsmiths, . . . . .	2
Tailor, . . . . .	1
Treasurer, . . . . .	1
Trunk-maker, . . . . .	1
Wire-makers, . . . . .	2
Weavers, . . . . .	8
Watch-makers, . . . . .	4
Waiter, . . . . .	1

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## Lodgers.

At Police Station No. 1, . . . . .	352
“ “ “ “ 2, . . . . .	83
“ “ “ “ 3, . . . . .	518
“ “ “ “ 4, . . . . .	178

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 1,131

Females, . . . . .	6
Foreigners, . . . . .	537
Number of lodgers in 1884, . . . . .	1502
“ “ “ “ 1885, . . . . .	1438
“ “ “ “ 1886, . . . . .	1199
“ “ “ “ 1887, . . . . .	950
“ “ “ “ 1888, . . . . .	1001
“ “ “ “ 1889, . . . . .	1042

**Nativity of Lodgers.**

United States, . . . . .	480
Ireland, . . . . .	475
England, . . . . .	109
Canada, . . . . .	18
Scotland, . . . . .	24
Germany, . . . . .	11
Sweden, . . . . .	6
France, . . . . .	3
Norway, . . . . .	1
Russia, . . . . .	1
Italy, . . . . .	2
Arabia, . . . . .	1

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 1131
**Reports Made by Patrolmen to City Marshal.**

Accidents, . . . . .	74
Buildings found open and secured, . . . . .	32
Buildings erected, . . . . .	266
Cases investigated, . . . . .	425
Defective streets, . . . . .	18
Defective side-walks, . . . . .	19
Defective water-pipes, . . . . .	9
Defective drains, . . . . .	1
Disturbances suppressed, . . . . .	24
Fire alarms, . . . . .	38
Fires extinguished without alarm, . . . . .	19
Intoxicated persons helped home, . . . . .	4
Lost children restored, . . . . .	6
Nuisances, . . . . .	2
Notices served by the department, . . . . .	2067
Street obstructions removed, . . . . .	10
Sick and injured persons assisted, . . . . .	16

Stray teams put up, . . . . .	17
Suicide, . . . . .	1

**Miscellaneous Business.**

Amount of property reported stolen in the city, . . . . .	\$1893 00
Amount of property recovered, . . .	4527 90
Witness fees and fines, earned by officers, paid by Clerk of Police Court, to City Treasurer, . . . . .	2146 17
Amount of fines imposed by court, . .	5289 74
Imprisonment imposed by court, . . . 30 years, 1 month	
Number of search warrants for liquor served, . . . . .	39
Number of liquor seizures, . . . . .	27
Gallons of liquor seized, . . . . .	79
Number of search warrants for stolen property served, . . . . .	7

The folowing cases were reported to the Medical Examiner :

January 15.	Henry McGuck.	Killed by cars.
February 3.	Dora Gordon.	Drowned in Charles River.
April 22.	William C. Emerson.	Suicide, pistol.
May 4.	Honora Shea.	Natural causes.
May 10.	Unknown man.	Killed by cars.
July 16.	Thomas Murphy.	Drowned in Charles River.
July 16.	Thomas Philpott.	Drowned in Charles River.
July 23.	C. J. Shumacker.	Drowned in Charles River.
July 23.	John Haley.	Alcoholism.
November 27.	Albert Groth.	Accident.
December 18.	Margaret Long.	Natural causes.

**Police Organization.**

Charles F. Richardson, City Marshal.  
Charles E. Davis, Captain, day duty at headquarters.  
Charles P. Huestis, Sergeant, night duty at headquarters.  
James D. Henthorn, Inspector.  
Charles T. Bartlett, Patrolman, night duty at Newton Centre.  
Noah F. Bosworth, Patrolman, day duty at Newtonville.  
William G. Bosworth, Patrolman, day duty at Auburndale.  
Bernard F. Burke, Patrolman, night duty at Nonantum.  
Robert W. Blue, Patrolman, night duty at Newton Centre.  
Thomas C. Clay, Patrolman, night duty at Newtonville.  
John W. Conroy, Patrolman, night duty at Nonantum.  
Richard B. Conroy, Patrolman, night duty at Newton.  
Charles O. Davis, Patrolman, day duty at Nonantum.  
John J. Davis, Patrolman, night duty at West Newton.  
John E. Dugan, Patrolman, night duty at Chestnut Hill.  
Frank B. Fletcher, Patrolman, day duty at Newton Centre.  
Ambrose M. Fuller, Patrolman, night duty at Newton Centre.  
Robert S. Harrison, Patrolman, day duty at Newton.  
Edson C. Holmes, Driver patrol wagon.  
William O. Harlow, Patrolman, night duty at Auburndale.  
A. F. A. G. Libby, Patrolman, detailed on wagon.  
William A. Leonard, Patrolman, night duty at Upper Falls.  
Rufus H. Moulton, Patrolman, night duty at Newton Highlands.  
Frederick M. Mitchell, Patrolman, night duty at Waban.  
Martin J. Neagle, Patrolman, night duty at Newton.  
John Purcell, Patrolman, day duty at Upper Falls.  
John W. Quilty, Patrolman, night duty at Auburndale.  
John Ryan, Patrolman, day duty at West Newton.  
William P. Soule, Patrolman, night duty at Newtonville.  
Guy S. Shannon, Patrolman, night duty at West Newton.  
Joshua H. Seaver, Patrolman, night duty at Lower Falls.  
Richard T. Taffe, Patrolman, night duty at Newton.

William C. Emerson, who was appointed on the police force, January 21, 1878, committed suicide at Station 1, April 22, 1890.

Additions to the force were : — Richard T. Taffe, appointed April 14, 1890 ; Joshua H. Seaver, appointed April 14, 1890 ; Guy S. Shannon, appointed April 14, 1890 ; Martin J. Neagle, appointed November 24, 1890 ; Frederick M. Mitchell, appointed April 14, 1890 ; William O. Harlow, appointed April 14, 1890 ; John E. Dugan, appointed June 21, 1890 ; John J. Davis, appointed April 14, 1890 ; Robert W. Blue, appointed October 17, 1890.

### **Street Lamp Lighting.**

At this date there are seventy-six (76) electric arc lights, seven hundred and eighty-four (784) gas lights, one hundred and fifty-seven (157) oil lights, four hundred and thirty-one (431) electric incandescent lights, used for street lighting, a total of fourteen hundred and forty-eight (1448) lights.

The regular lighting of the street lamps for the year 1891, as lighted by the moon schedule, will be as follows, both dates included :

First lighting, January 25 to February 13.

Second lighting, February 24 to March 14.

Third lighting, March 26 to April 12.

Fourth lighting, April 25 to May 12.

Fifth lighting, May 24 to June 12.

Sixth lighting, June 23 to July 12.

Seventh lighting, July 22 to August 10.

Eighth lighting, August 23 to September 11.

Ninth lighting, September 20 to October 9.

Tenth lighting, October 19 to November 7.

Eleventh lighting, November 1 to December 78.

Twelfth lighting, December 18 to January 6, 1892.

Appropriation for police department for 1890,	\$31,435 00
Additional appropriation, . . . . .	11,075 00
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	\$42,510 00
The amount expended, . . . . .	41,175 74
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Balance, . . . . .	\$1,334 26
The amount expended, . . . . .	\$41,175 74
Fees and fines paid by Clerk of Court to City	
Treasurer, . . . . .	2,146 17
	<hr/>
Total expense for the department, . . . . .	\$39,029 57

### Station Houses.

At Police Station No. 3 (Police headquarters), I make the same recommendations as last year, that one of the cells be padded for the confinement of insane persons.

The several police stations are, all in good condition, as is also the city property used by the department.

### Police Signal System.

The Police Signal System was put in operation July 2, and the patrol wagon was put into service at the same time. During the six months, ending December 31, the wagon has brought to Police Headquarters 300 prisoners, making 218 runs, and covering 742 miles. The new stable, now building for the patrol wagon will give this department additional advantages, both in the care of its teams, and providing sleeping accommodations for the men detailed on the patrol wagon.

### Liquor Law.

The law, in regard to the sale of intoxicating liquor, has been rigidly enforced, and the principal dealers have given up the business. During the year there have been sixteen convictions.

A table showing the gradual growth of the police department, and the increase of the business during the past ten years :

YEAR.	Officers on Force.	Number of Arrests.	Amount Expended for Police Department.	Court Fees Earned.	Balance unexpended.
1881 . . .	16	402	\$16,930.96	\$808.00	\$69.04
1882 . . .	16	410	17,558.39	957.62	*58.38
1883 . . .	16	408	17,199.57	780.32	500.43
1884 . . .	16	462	17,752.52	820.50	72.48
1885 . . .	18	485	19,498.17	702.62	1.83
1886 . . .	20	528	21,591.46	674.16	2.54
1887 . . .	22	574	23,344.85	1,119.81	5.15
1888 . . .	23	630	24,594.94	1,321.00	105.06
1889 . . .	24	709	26,663.44	1,557.00	6,531.56
1890 . . .	32	830	41,175.74	2,146.17	1,334.26

\*Overdrawn.

### Inspector.

During the year I recommended the grade of Inspector of Police, and Patrolman James D. Henthorn was appointed to that position. The duties of such an officer are manifold, and with a growing city, subject to civil suits at all times, in addition to its criminal work, I consider such an office of great importance to the efficiency of the department.

### Uniforms.

I would recommend that the Committee on Police be authorized to purchase at wholesale price, a reasonable amount of blue cloth, to be used in the manufacture of uniforms. The officers would then have uniforms alike in color, and cloth of a good substantial quality, which it is impossible to do, where officers have their clothing made from different pieces of cloth, with many shades of color. The cloth would be paid for by the officers as they use it. The officers when brought together for street duty, or other purposes would then present a much better appearance than at present.

**Police Signal Stations.****CIRCUIT STATIONS.**

I.	{	46	Winter Street.
		51	Oak and Chestnut Streets.
		53	Walnut and Lincoln Streets.
		54.	Beacon and Walnut Streets.
II.	{	34	Valentine and Highlands Streets.
		61	Beacon and Hammond Streets.
		62	Beacon and Centre Streets.
		65	Station Street and Glen Avenue.
III.	{	13	Washington Street, Opposite Adams Street.
		14	Centre Street, at B. & A. R. R.
		16	Chapel and Watertown Streets.
		21	Walnut and Washington Streets.
		72	Centre and Sargent Streets.
		74	Church Street and Waverly Avenue.
IV.	{	23	River Street.
		25	Derby and Waltham Streets.
		32	Washington Street, Opposite Auburn Street.
		36	Auburn Street, at B. & A. R. R.
		41	Washington Street and Woodland Avenue.
		43	Washington and Grove Streets.

**Conclusion.**

In closing this report, I wish to express my gratitude to His Honor, the Mayor, and the Police Committee, for the very generous support they have always given me in the discharge of my duties, also to the members of the department, who have so conducted themselves as to relieve me of much anxiety.

Respectfully submitted,

CHARLES F. RICHARDSON,

*City Marshal.*



# CITY OF NEWTON.

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ANNUAL REPORT OF THE TRUSTEES

OF THE

# NEWTON FREE LIBRARY,

NEWTON, MASS.,

FOR THE YEAR ENDING DECEMBER 31, 1890.



NEWTON UPPER FALLS:  
FANNING PRINTING CO.  
1891.



BOARD OF TRUSTEES, 1891.

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**At Large.**

EDWIN B. HASKELL.	WILLIAM CLAFLIN.
JULIUS L. CLARKE.	A. LAWRENCE EDMANDS.
JOSEPH R. LEESON.	

**From the Board of Aldermen.**

LEWIS E. COFFIN.

**From the Common Council.**

GEORGE F. CHURCHILL.



## ORGANIZATION FOR THE YEAR 1891.

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### **President.**

EDWIN B. HASKELL.

### **Secretary.**

JULIUS L. CLARKE.

### **Committee on Library.**

PRESIDENT, *ex-officio*.  
JOSEPH R. LEESON.

WILLIAM CLAFLIN.  
JULIUS L. CLARKE.

### **Committee on Building.**

PRESIDENT, *ex-officio*.  
LEWIS E. COFFIN.

A. LAWRENCE EDMANDS.  
GEORGE F. CHURCHILL.

### **Superintendent.**

JOHN C. KENNEDY.

### **Librarian.**

ELIZABETH P. THURSTON.

### **Assistant Librarians.**

M. ELLA CHASE.

ETTA P. CLEAVELAND.

LOUISE J. SMALLWOOD.

CHARLOTTE A. FLANDERS.

KATHARINE K. WOOD.

### **Janitor.**

HENRY J. MARSHMAN.



## REPORT OF PRESIDENT.

---

*To His Honor the Mayor and the City Council of Newton,  
Massachusetts :*

The Trustees of the Newton Free Library take great pleasure in reporting the growing usefulness and public appreciation of the beneficent institution under their charge. The operation of all its departments during the last year has been harmonious, and no complaints of its management have come to our knowledge.

The report of the Superintendent and the statistical tables of the Librarian, herewith submitted, give all essential details of the work of the Library during the year. From them it appears that the aggregate circulation of the year was 110,627 volumes, against 105,230 in 1889, while the names registered for the purpose of taking books increased from 8,773 to 9,704.

Of the total circulation, 57,296 volumes, or more than half, were distributed through the agencies in the nine other villages. The growing importance of this part of the Library service leads the Trustees to suggest that the time may come in the not distant future when it will be advisable for the city to cooperate with the different villages in maintaining a convenient and comfortable reading room in each of them. A reasonable plan for that purpose would be for

the people of the village, by associate action, to provide the necessary room, lighted and heated, and the city to furnish the reading matter.

The books delivered to fourteen of the twenty public schools of the city were 6,155, against 4,496 in 1889. We regard this as a valuable feature of the Library's usefulness, as it makes the Library a direct help to public education and supplies a real want. The teachers of the city show a disposition to make the most of the privilege, which they warmly appreciate.

About 2,000 volumes have been added to the Library during the year, and the total number of volumes now in the Library is 32,613, against 30,622 by the last annual report.

The percentage of fiction to the whole circulation shows a gratifying decrease, moderate increases appearing in essays, poetry, geography and travels, biography, history, natural sciences and industrial arts. The acquirement of the habit of reading almost inevitably leads to a demand for better quality.

In addition to the liberal appropriation by the City Council for the purchase of books there was expended during the year:

From the Jewett Art Fund	.	.	.	.	\$193 09
From the Alden Speare Fund	.	.	.	.	59 94
From the Charles Read Fund	.	.	.	.	134 25
From the Farlow Reference Fund	.	.	.	.	176 39

The purchases made from these funds are in nearly all cases such as would not be made from the money appropriated by the city, while there is no question of their permanent usefulness to the Library, especially as works of reference.

There is still room for a larger use of the Library, and the people of Newton are cordially invited to make themselves better acquainted with its contents. The new catalogue, which is very much needed, and for which the



City Council has made the required appropriation, will add greatly to the public convenience in the use of the Library.

The Trustees, after a careful consideration of the subject, asked for an appropriation to fit the Library building for electric lighting, which the Council granted. The request was made on grounds of economy and safety, and the work will be undertaken at an early day. It is hoped that it will result in a considerable saving in the cost of lighting, while the danger of fire will be lessened and the air of the rooms improved.

The Free Library sustained a serious loss during the year by the death of Mr. John S. Farlow, one of its liberal patrons, who had been connected with its management almost from the beginning. He was appointed on the first board of managers in 1869 and served three years. He was elected again in 1874 for the full term of five years; but the Library was transferred to the city in 1876, since which time he was a member of the Board of Trustees until his death, and President of the Board from 1881. He was devoted to the interests of the Library and tireless in its service, and he leaves in it one of his many monuments, the Farlow Reference Fund. An honorable and public spirited citizen has ended his work among us, leaving a high example to his associates.

At a meeting of the Board of Trustees on April 1st the following resolutions were adopted:

*Whereas*, the sad and sudden decease of our President, HON. JOHN S. FARLOW, has removed from us a long valued friend and associate, — an honored citizen and a public benefactor, whose loss brings profound sorrow to us all, and especially to those nearest and dearest to him, be it therefore

*Resolved*, That in the death of MR. FARLOW we recognize the loss to our community of a man of broadest intellect, enlarged views, sterling integrity, and generous impulses.

His benefactions to our Free Library and his unwearied labors in promoting its usefulness, entitle him to the gratitude of all who enjoy its priceless benefits.

His gift of the noble park, which bears his name, and of the cemetery chapel,

which he dedicated to the memory of his friend, and the friend of every child, are monuments of his beneficence and public spirit.

*Resolved*, That in tender consciousness of our great loss, both in personal and public relations, and in kindly expression of our sincere and heartfelt sympathy with his bereaved family, our secretary be hereby directed to transmit to the latter an official copy hereof.

Respectfully submitted by the Board of Trustees,

EDWIN B. HASKELL, *President*.

## REPORT OF SUPERINTENDENT.

---

*To the Trustees of the Newton Free Library:*

*Gentlemen:*—It is made my duty to present to you a statement of the present condition of the Library and a report of its progress during the year of 1890.

I have the honor to submit the usual accompanying tables which give at a glance the work done and its relation to previous years, with the cost to the city of the books which have been bought, of the reading room with its papers and periodicals, and of the administration and incidental expenses during the past year. The whole circulation for the year has been 110,627 volumes; 5,397 in excess of the previous year. The Library itself has been much more largely used than heretofore, especially the Farlow reference room and the reading room. The demand for the reading room by all classes has been so great that it was deemed expedient to keep it open from 7.30 A. M. to 9 P. M., and the hours for keeping the Farlow reference room open will soon have to be increased.

It would be a source of much interest and gratification to any intelligent person to look into this room during almost any evening while open. In addition to its adult occupants a large company of lads, who would otherwise be found in the streets, will be seen reading the newspapers or magazines. Our citizens from the other wards, beside those nearest the Library, are more and more availing themselves of the facili-

ties of the reading room during the day. We have on file papers from all the chief cities in this country from Canada to Mexico, and from Europe to the East.

Ladies forming various literary clubs in the different wards of the city find the Farlow reference room of great advantage to them as well as those pursuing special studies.

A long-felt want has been supplied by putting in an elevator running from the janitor's office to the covering room, thus enabling the janitor and messenger to handle the thousands of books which they are required to do, with comparative ease and safety, instead of carrying them up a flight of stairs as they were formerly obliged to do.

I recommend that a new floor be laid in the reading room during the current year; also that more shelves be put into the document room.

The appropriation made by the City Council for the year was \$10,495. Amount realized from fines, sales of bulletins and old paper was \$468.46.

The whole number of books in the Library is 32,613. Every book is accounted for, and only in a very few instances have they been defaced. The number of books covered was 13,449; 941 in excess of the previous year. The largest number of books delivered at the Library on any one day was 708 on February 24th. The number of books added during the year was 1,991. The registered number of names of persons using the Library is 9,704.

It is no small commendation of our present faithful and accomplished Librarian, and one well deserved, that she has not failed to meet these growing requisitions upon her knowledge of the literature which has been gathered, as well as exhibited a general familiarity with the various subjects under public discussion. Miss Thurston has been well supported also by her assistants. No complaint has reached the ear of the Superintendent as to the readiness or

courtesy with which all demands upon the Library have been met.

There has been some change during the year in its personnel, Miss H. W. Harlowe having retired from the position of assistant. Her place has since been filled by Miss M. E. Chase of Newton, a lady of fine education, well read, of literary tastes, and fond of labor among books. Into her hands falls much of the work of completing the card catalogue.

During the year the Library has been fortunate in receiving many valuable donations of books and works on art, and I desire especially to thank William G. Farlow, M. D., for the following donation. A few weeks before President Farlow's death he requested his son to make out a list of works on fungi, which it would be desirable for the Library to own. Dr. Farlow, who is Professor of Cryptogamic Botany at Harvard College and the leading authority in the country in this branch of study, made the list and sent to London for the works, which have since arrived and been presented to the Library, after being beautifully bound. The works are:—

“Illustrations of British Fungi,” by M. C. Cooke;  
“Treatise on the Esculent Funguses of England, by C. D. Badham; “Diseases of Plants,” by H. Marshall Ward;  
“Histoire des Champignons, Comestibles et Veneneux,” with Atlas of Plates, by Jos. Roques; “Sveriges Atliga och Giftiga Svampar,” by E. Fries; and “Die Pilze Nord-Deutschlands,” by Otto Weberbauer.

The many volumes contain hundreds of colored plates of the different species, exquisitely executed and showing wonderful beauty and variety in form and coloring.

Also to Mr. George C. Lord for a beautiful copy of the “History of Middlesex County,” in three volumes; and to Miss Mary Shannon for Tennyson's “Idylls of the King,” illustrated by Dore; works of Capt. Wm. Baillie; “Les

Chefs-d'Œuvre de la Peinture Italienne;" "Eux Fortes Modernes."

During the year our Library met with a great loss in the death of our honored and respected President, John S. Farlow. He had contributed very generously from his fortune and time towards making the Library what it is today. As superintendent it was my fortune to meet him almost daily at the Library, and I always found in him a pleasant, genial, upright man, one always careful of the interests of others, and taking the deepest interest in matters pertaining to the welfare of the City of Newton, especially the Newton Free Library.

Respectfully submitted,

JOHN C. KENNEDY, *Superintendent.*

# APPENDIX.

## A.

RECEIPTS.	1890.	1889.	1888.
December 31.			
Municipal appropriation . . .	\$10,495 00	\$10,295 00	\$10,170 00
Fines, bulletins, etc. . . .	468 46	418 38	446 39
Cash on hand at last report . .	41 79	5 64	56
	\$11,005 25	\$10,719 02	\$10,616 95

## B.

EXPENDITURES.	1890.	1889.	1888.
December 31.			
Salaries . . . . .	\$4,186 51	\$4,042 15	\$3,518 16
Reading Room . . . . .	539 51	504 60	463 60
Incidentals . . . . .	236 93	169 76	168 85
Repairs . . . . .	212 49	11 80	428 28
Furniture and fixtures . . . .	11 10	63 29	233 95
Printing bulletins . . . . .			188 40
Printing and advertising . . .	37 00	36 75	123 35
Binding . . . . .	434 33	380 05	242 55
Books . . . . .	2,821 95	3,061 49	2,455 49
Light . . . . .	653 60	569 40	539 80
Fuel . . . . .	301 39	288 40	553 50
Distributing agencies and express.	1,467 40	1,425 21	1,292 95
Blanks and stationery . . . .	84 71	102 72	392 43
Postage account . . . . .	18 33	21 50	10 00
Total expenditure . . . . .	11,005 25	10,677 12	10,611 31
Bal. with City Treasurer, \$0 00			
Balance at the Library, 0 00			
Total balance, \$0 00	0 00	41 90	5 64
	\$11,005 25	\$10,719 02	\$10,616 95

## C.

CIRCULATION.	1890.	1889.	1888.
Number of days the Library was open . . . . .	305	304	305
Number of holidays the Library was closed . . . . .	8	9	8
Number of other week-days the Library was closed . . . . .	..	..	..
Number of volumes delivered for home use . . . . .	110,627	105,230	104,700
Average daily use . . . . .	362.3	346.1	343.2
Largest daily use, Feb. 24, 1890 . . . . .	708	..	..
Feb. 23, 1889 . . . . .	..	680	..
Mar. 17, 1888 . . . . .	..	..	641
Smallest daily use, Aug. 12, 1890 . . . . .	23	..	..
July 25, 1889 . . . . .	..	187	..
Nov. 26, 1888 . . . . .	..	..	90
Number of books lost and not paid for . . . . .	6	15	12
Number of books lost and paid for . . . . .	5	2	4
Number of books worn out and withdrawn . . . . .	129	50	39
Number of notices to delinquents, . . . . .	169	177	262
of volumes covered . . . . .	13,449	12,508	13,460
of volumes bound . . . . .	1,117	884	601
of names registered during the year . . . . .	931	1,026	1,025
Total number of names registered . . . . .	9,704	8,773	7,747



## D.

DISTRIBUTION THROUGH THE AGENCIES AND TO THE SCHOOLS.	1890.
Books distributed at Newton Centre . . . . .	13,964
Newtonville . . . . .	13,932
Newton Highlands . . . . .	8,746
Auburndale . . . . .	7,140
West Newton . . . . .	5,082
Newton Lower Falls . . . . .	3,753
Newton Upper Falls . . . . .	3,237
Nonantum . . . . .	879
Oak Hill . . . . .	563
Total agency distribution . . . . .	57,296
Books delivered to 14 of the 20 Public Schools.	
to Adams . . . . .	795
Mason . . . . .	743
Bigelow . . . . .	733
Underwood . . . . .	666
Prospect . . . . .	644
Eliot . . . . .	440
High . . . . .	428
Williams . . . . .	427
Hyde . . . . .	413
Clafin . . . . .	359
Rice . . . . .	170
Pierce . . . . .	157
Lincoln . . . . .	130
Hamilton . . . . .	50
Total number of books delivered for school use . . . . .	6,155

## E.

ACCESSIONS.	1890.	1889.	1888.
Increase by purchase . . .	1,838	2,050	1,804
by gift . . . . .	123	128	103
by binding pamphlets .	15	8	7
by binding periodicals .	143	136	96
Number of missing volumes re- stored since last report . . .	1	1	..
Total accessions for the year	2,120	2,323	2,010
Number of volumes missing or withdrawn since last report .	129	67	55
Actual increase . . . . .	1,991	2,256	1,955
Number of volumes in the Li- brary, as last reported . . .	30,622	28,366	26,411
Total number of volumes in the Library . . . . .	32,613	30,622	28,366
Number of pamphlets bound since last report . . . . .	37	32	74
Number of papers subscribed for of newspapers given . . .	35 8	34 9	36 7
of magazines subscribed for . . . . .	79	79	71
of magazines given . . .	11	11	9
Total number received . . .	133	133	123

## F.

CLASSIFICATION, GROWTH, SIZE, AND USE.	Increase during the Year.	Total Number of Volumes.	Volumes issued during the Year.	Per Cent. of Circulation.		
				1890.	1889.	1888.
<i>Literature.</i>						
Prose, fiction, and juvenile read- ing . . . . .	224	6,691	68,417	61.84	64.11	66.34
Essays, poetry, and drama . . .	253	3,976	8,197	7.41	6.79	6.43
Periodicals . . . . .	313	2,503	3,569	3.23	3.05	2.41
Foreign Literature . . . . .	66	749	513	.46	.58	.46
<i>History.</i>						
Geography and travels . . . .	185	2,963	9,374	8.47	8.20	7.49
Biography . . . . .	203	3,102	5,406	4.89	4.40	4.47
History . . . . .	151	2,952	5,701	5.15	4.81	4.70
<i>Arts and Sciences.</i>						
Natural science and industrial arts . . . . .	247	3,270	7,432	6.72	6.03	5.77
Political and social science . .	98	1,679	1,197	1.08	1.26	1.09
Theology . . . . .	83	1,337	804	.73	.73	.68
Reference Library . . . . .	168	3,391	17	.02	.04	.16
Accessions for the year . . . .	1,991					
Number of volumes in the Library . . . . .	..	32,613	..	..	..	..
Circulation for the year . . . .	..	..	110,627	..	..	..

## G.

Received for catalogues sold in 1890 . . . . .	\$7.00
Paid City Treasurer . . . . .	7.00



## LIST OF PERIODICALS FOR 1891 IN THE READING ROOMS.

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### MAGAZINES.

- |                             |                                  |
|-----------------------------|----------------------------------|
| All the Year Round.         | Edinburgh Review.                |
| American Agriculturist.     | Education.                       |
| American Architect.         | Engineering and Building Record. |
| American Garden.            | English Illustrated Magazine.    |
| American Naturalist.        | Folio.*                          |
| American Notes and Queries. | Fortnightly.                     |
| American Philatelist.       | Forum.                           |
| Andover Review.             | Garden and Forest.               |
| Appalachia.                 | Gardener's Chronicle.            |
| Arena.                      | Good Housekeeping.               |
| Art Amateur.                | Harper's Magazine.               |
| Art Interchange.            | Haus und Herd.                   |
| Atlantic Monthly.           | Home-Maker.                      |
| Bibliotheca Sacra.          | Illustrated London News.         |
| Blackwood's Magazine.       | Lend a Hand.                     |
| Cassell's Family Magazine.  | Library Journal.                 |
| Catholic World.             | Life.                            |
| Century.                    | Lippincott's Magazine.           |
| Chambers' Journal.          | Literary News.                   |
| Chautauquan.                | Literary World.                  |
| Civil Service Record.*      | Littell.                         |
| Common School Education.    | London Punch.                    |
| Contemporary.               | Magazine of American History.    |
| Converted Catholic.         | Magazine of Art.                 |
| Cosmopolitan.               | Magazine of Western History.     |
| Country Gentleman.          | Medical Bulletin.*               |
| Critic.                     | Nation.                          |
| Decorator and Furnisher.    | Nationalist.*                    |

Nature.	Publishers' Weekly.
New Eng. Hist. and Gen. Reg.	Puck.
New Eng. Journal of Education.	Quarterly Journal of Economics.
New England Magazine.	Quarterly Review.
New Englander and Yale Rev.	St. Nicholas.
Nineteenth Century.	Sanitarian.
North American Review.	Science.
Notes and Queries.	Scientific American.
Official Gazette, U. S. Pat Office *	Scientific American Supplement.
Open Court.*	Scribner's Magazine.
Our Dumb Animals.*	Traveler's Record.
Outing.	United Service Magazine.
Overland.	Westminster Review.
Philanthropist.*	Wide Awake.
Political Science Monthly.	Writer.
Political Science Quarterly.	Youth's Companion.
Public Opinion.	

### NEWSPAPERS.

Alta California.	Harper's Bazar.
American Citizen.†	Harper's Weekly.
Atlanta Constitution.	Independent.
Baltimore American.	London Times.
Boston Advertiser.	Montreal Gazette.
Boston Commercial Bulletin.	New Orleans Picayune.
Boston Globe.	New York Evening Post.
Boston Herald.	New York Herald.
Boston Journal.	New York Sun.
Boston Post.	New York Times.
Boston Transcript.	New York Tribune.
Boston Traveller.	New York World.
British American Citizen.†	Newton Graphic.
Brooklyn Eagle.	Newton Journal.
Charleston News and Courier.	Paradise of the Pacific.†
Chicago Tribune.	Philadelphia Press.
Christian Leader.†	St. Louis Globe Democrat.
Christian Register.†	Saturday Evening Gazette.
Cincinnati Commercial.	Springfield Republican.
Denver Times.†	Woman's Journal.†
Florida Times Union.	Zion's Herald.

\* Represents magazines given.

† Represents newspapers given.







CITY OF NEWTON.

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ANNUAL REPORT

OF THE

OVERSEERS OF THE POOR,

FOR THE YEAR ENDING DECEMBER 31, 1890.



NEWTON UPPER FALLS:  
FANNING PRINTING CO.  
1891.



At the regular meeting of the Board of Overseers of the Poor held this day the annual report, as prepared by the Clerk, (for 1890,) was accepted by the Board, and the Clerk was instructed to present the same to the City Council.

NATHAN MOSMAN, *Clerk.*

WEST NEWTON, Feb. 5, 1891.



# BOARD OF OVERSEERS OF THE POOR, 1890.

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HIS HONOR HEMAN M. BURR, *Chairman ex-officio.*

**Ward One.**

WILLIE M. RUSSELL.

**Ward Two.**

JOHN F. PAYNE.

**Ward Three.**

ANDREW J. FISKE.

**Ward Four.**

NATHAN MOSMAN.

**Ward Five.**

EUGENE FANNING.

**Ward Six.**

GEORGE WARREN.

**Ward Seven.**

HENRY C. DANIELS.

**Committee on Almshouse.**

NATHAN MOSMAN.

EUGENE FANNING.

GEORGE WARREN.

**City Almoner, and Clerk of the Board.**

NATHAN MOSMAN.

**Warden of Almshouse.**

NATHANIEL D. MOODY.

**Matron of Almshouse.**

MRS. ELIZA A. MOODY.

City Almshouse, Beacon Street.





## REPORT OF THE OVERSEERS OF THE POOR.

---

*To His Honor the Mayor and the City Council of the City of  
Newton :*

GENTLEMEN:—The Board of Overseers of the Poor herewith presents its annual report for the year ending December 31, 1890.

The membership has remained unchanged. The personal attendance at the twelve meetings for business has been seventy-two out of a possible eighty-four.

The general condition of business and of health in the city has been good, consequently no unusual amount of aid for the destitute has been required.

The fact that so large a part of the expense of this department is caused by the use of intoxicating liquor appears a sufficient reason for vigorous efforts for suppressing its illegal sale within city limits. Such efforts have been made with partial success, yet from some source a supply is still continued to such a degree as to result in a large expense to taxpayers.

The charitable societies, through their visitors, are doing an important work in many families aided by this department. The material aid, encouragement, and common sense carried by them into these homes are of great value where these elements are so often lacking.

In 1889 the city had twenty-seven patients in the Newton Cottage Hospital. In 1890 thirty-nine were placed

there. Of this number thirty-five, having no settlement, were chargeable to the State, and four to other cities and towns. No bills are presented to this Board for persons having a settlement in Newton. The cases having no settlement are mostly of persons working at trades and temporally residing here, and of women and girls engaged in domestic service. For the relief and care of these, when destitute, the city is responsible. In no other way could this Board so well or economically care for the sick who come to it for relief. The hospital is admirably managed and giving most satisfactory results in return for the outlay.

The whole number of families receiving aid out of Almshouse, including the Newton Cottage Hospital patients, during any part of the year, was . . .	164
Whole number of persons, . . . . .	404
Having settlement in Newton, . . . . .	232
Having settlement in other cities and towns in the State, . . . . .	76
Aided in other cities and towns and chargeable to Newton, . . . . .	53
Having no settlement and chargeable to the State, . . .	96
Of the whole number there were males, . . . . .	176
females, . . . . .	228

Of persons having full support out of almshouse during any part of the year, there were at Danvers Lunatic Hospital, . . . . .	2
Tewksbury Insane Asylum, . . . . .	2
Westboro Insane Hospital, . . . . .	5
Worcester Insane Asylum, . . . . .	4
Worcester Lunatic Hospital, . . . . .	6
Placed in a family, . . . . .	1
Whole number of insane supported, . . . . .	20
Number at present supported, . . . . .	16



The amount appropriated by the City Council for  
poor out of Almshouse was . . . \$9,200 00  
Overdrawn, . . . . . 77 42

Details of expenditures and receipts will be found in  
accompanying tables.

## REPORT OF OVERSEERS OF POOR.

## Expenditures for the Year 1890.

MONTH.	Cash.	Groceries.	Fuel.	Clothing.	Board.	Medical Attendance.	Medicine.	Burials.	Tramps.	Commonwealth of Massachusetts.	Insane.	Other Towns.	Salaries.
January . . . .	\$12 64	\$136 76	\$58 74	..	\$30 59	\$20 00	\$8 65	\$22 00	..	\$117 12	\$14 86	\$424 50	..
February . . . .	22 40	191 25	127 04	\$2 55	46 72	22 00	12 90	20 00	..	..	..	20 00	..
March . . . .	13 61	187 37	123 52	10 50	48 85	30 50	20 14	..	..	..	451 76	3 49	..
April . . . .	29 06	120 81	45 28	..	57 52	26 50	16 56	..	..	..	..	38 66	..
May . . . .	24 43	149 16	32 51	..	32 15	55 00	8 08	36 00	..	..	..	..	..
June . . . .	24 50	98 42	7 95	..	142 14	6 00	5 65	..	..	..	605 43	..	..
July . . . .	12 10	142 81	10 20	3 00	49 15	5 00	7 10	10 00	..	186 33	169 00	197 88	..
August . . . .	21 50	87 95	14 70	..	9 25	14 00	..	..	..	..	..	..	..
September . . . .	15 70	138 84	35 51	..	89 58	40 00	14 88	12 50	..	..	622 13	..	..
October . . . .	48 76	124 05	77 62	..	93 32	7 50	17 71	..	..	68 00	..	156 55	..
November . . . .	10 06	114 46	75 60	..	12 98	8 50	12 15	7 00	..	..	..	218 78	..
December . . . .	15 15	203 04	137 96	..	71 44	29 00	16 17	15 00	..	..	515 24	..	..
Total . . . .	\$249 91	\$1,682 35	\$746 63	\$16 05	\$683 99	\$264 00	\$139 99	\$122 50	\$12 57	\$371 45	\$2,378 42	\$1,059 86	\$1,550 00

**Receipts from Various Sources.**

Commonwealth of Massachusetts, . . . . .	\$690 69
City of Boston, . . . . .	94 75
City of Chelsea, . . . . .	125 53
City of Waltham, . . . . .	106 83
City of Somerville, . . . . .	21 00
City of Lowell, . . . . .	43 60
City of Lawrence, . . . . .	2 00
Town of Pittsfield, . . . . .	20 75
Town of Blackstone, . . . . .	60 00
Town of Needham, . . . . .	70 50
Town of Wellesley, . . . . .	50 38
Town of Concord, . . . . .	23 05
Town of Watertown, . . . . .	9 60
Town of Natick, . . . . .	8 00
Guardians and relatives, . . . . .	802 28
Total receipts for poor out of Almshouse, . . . . .	<u>\$2,128 96</u>

**Almshouse Department.**

The average number of inmates at the almshouse remains low. While all really needing a home here are received, the aim is to encourage and assist those who can to remain outside in partial self-support and independence. On the other hand there are those who by age and infirmity are unable to properly care for themselves and therefore need the comfort and attention given at the Almshouse, who flatly refuse this offered aid, choosing to receive the small cost of support here and with it attempt to live outside.

The number of persons supported at the Almshouse for all or any part of the year has been 41; present number, 28; average number for the year, 28. Four persons have died, two males and two females, aged respectively eighty-one, seventy-three, sixty-nine and fifty-three years.

The amount appropriated by the City Council for

Alms-house expense and repairs was . . . . .	\$4,500 00
Amount expended, . . . . .	3,544 98
	<hr/>
Balance, . . . . .	\$955 02

Amount received from board, sale of produce,

wood, etc., . . . . .	\$1,803 03
Alms-house expense and repairs, net, . . . . .	1,741 95

The amount expended has been less than usual for the reason that no standing wood has been bought or the manure taken from the city stables.

In view of the expected transfer of the department to a new location the appropriation for 1890 was increased to cover the cost of removal and house furnishing. This change not being made a balance was returned into the treasury. No provision is made for such expense in the appropriation for 1891.

The total appropriation for the Poor Department

for the year was . . . . .	\$13,700 00
Total expenditures, . . . . .	12,822 40
Total receipts, . . . . .	3,931 99
Total expense of the department, net, . . . . .	8,890 41
Unexpended balance, . . . . .	877 60

The condition of the live stock and tools on the farm remains substantially as at the beginning of the year.

The condition of the buildings at present is second-class, expenditures having been spared in anticipation of removal.

Respectfully submitted,

For the Overseers of the Poor,

NATHAN MOSMAN, *Clerk.*











ANNUAL REPORT  
OF THE  
SCHOOL COMMITTEE  
OF THE  
CITY OF NEWTON.  
1890.  
VOLUME LI.



NEWTON UPPER FALLS:  
FANNING PRINTING CO.  
1891.



ORGANIZATION OF THE SCHOOL COMMITTEE.

JANUARY 1890.

HON. HEMAN M. BURR, MAYOR, CHAIRMAN, *ex officio*.

ELLIOTT J. HYDE, PRESIDENT COMMON COUNCIL, *ex officio*.

J. EDWARD HOLLIS, CHAIRMAN.

THOMAS EMERSON, SECRETARY AND SUPERINTENDENT.

ELECTED MEMBERS.	TERM OF OFFICE.	
	WARDS.	EXPIRES.
CHARLES A. DREW . . . . .	I.	January, 1892
J. EDWARD HOLLIS . . . . .	I.	January, 1892
JOHN W. DICKINSON . . . . .	II.	January, 1892
MARY R. MARTIN . . . . .	II.	January, 1892
SAMUEL BARNARD . . . . .	III.	January, 1891
ABBY E. DAVIS . . . . .	III.	January, 1891
DAVID E. BAKER . . . . .	IV.	January, 1891
CHARLES E. PARKER . . . . .	IV.	January, 1891
FRANK J. HALE . . . . .	V.	January, 1893
ALBERT B. PUTNEY . . . . .	V.	January, 1893
AMOS E. LAWRENCE . . . . .	VI.	January, 1893
ALBERT D. S. BELL . . . . .	VI.	January, 1893
GEORGE C. TRAVIS . . . . .	VII.	January, 1893
FRANCIS B. HORN BROOKE . . . . .	VII.	January, 1891



## STANDING COMMITTEES.

---

### High School.

J. EDWARD HOLLIS.

JOHN W. DICKINSON.

FRANCIS B. HORN BROOKE.

### Ward One.

CHARLES A. DREW.

J. EDWARD HOLLIS.

ALBERT D. S. BELL.

### Ward Two.

JOHN W. DICKINSON.

MARY R. MARTIN.

CHARLES A. DREW.

### Ward Three.

ABBY E. DAVIS.

SAMUEL BARNARD.

DAVID E. BAKER.

### Ward Four.

CHARLES E. PARKER.

DAVID E. BAKER.

SAMUEL BARNARD.

### Ward Five.

ALBERT B. PUTNEY.

FRANK J. HALE.

ELLIOTT J. HYDE.

### Ward Six.

AMOS E. LAWRENCE.

ALBERT D. S. BELL.

FRANK J. HALE.

**Ward Seven.**

GEORGE C. TRAVIS.

FRANCIS B. HORN BROOKE.

AMOS E. LAWRENCE.

**Evening Schools.**

CHARLES A. DREW.

FRANK J. HALE.

MARY R. MARTIN.

**Drawing, Music, and Sewing.**

ABBY E. DAVIS.

ALBERT B. PUTNEY.

MARY R. MARTIN.

**Text Books.**

ALBERT B. PUTNEY.

FRANCIS B. HORN BROOKE.

DAVID E. BAKER.

**Rules and Regulations.**

FRANK J. HALE.

GEORGE C. TRAVIS.

AMOS E. LAWRENCE.

**Salaries.**

FRANCIS B. HORN BROOKE.

SAMUEL BARNARD.

J. EDWARD HOLLIS.

**School Houses.**

JOHN W. DICKINSON.

CHARLES E. PARKER.

J. EDWARD HOLLIS.

**Accounts.**

SAMUEL BARNARD.

ALBERT D. S. BELL.

CHARLES A. DREW.

**Supplies.**

AMOS E. LAWRENCE.

CHARLES E. PARKER

ELLIOTT J. HYDE.

CITY OF NEWTON.

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IN BOARD OF SCHOOL COMMITTEE,

*December 17, 1890.*

}

VOTED: That the report of the Superintendent for 1890 be the Annual Report of the School Board.

ORDERED: That the same number of copies be printed as last year.

A. L. HARWOOD,

*Secretary.*





## SUPERINTENDENT'S REPORT.

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*To the School Committee of Newton:—*

In conformity to the rules of the Board, I respectfully present my annual report for the year 1889-90. The schools were in session forty weeks, beginning September 9, 1889, and ending June 27, 1890. The statistics in this report cover the school year from July 1, 1889, to June 30, 1890.

A general exhibit of the results of the last school census, of the number of school buildings and the value of the school property, of the enrolment and attendance of the pupils, and of the cost of the schools, is given in the following statistics.

### School Census.

Population of the city, U. S. Census of 1890,	24,375
Number of persons in the city between five and fifteen years of age, May 1, 1890,	4,241
Number of pupils between five and fifteen years of age attending the public schools in May, 1890,	3,362
Number of pupils between five and fifteen years of age in private schools,	237
Number of persons between five and fifteen years of age not attending school,	642

Number of pupils between eight and fourteen years of age attending the public schools in May, 1890, . . . . .	2,356
Number of pupils between eight and fourteen years of age in private schools, . . . . .	122
Number of persons between eight and fourteen years of age not attending school, . . . . .	88

### School Buildings.

Number of school houses, . . . . .	22
Number of occupied rooms, May 1, 1890, . . . . .	106
Number of unoccupied rooms, May 1, 1890, . . . . .	7
Total number of rooms, May 1, 1890, . . . . .	113
Number of halls, May 1, 1890, . . . . .	4
Total number of sittings, May 1, 1890, . . . . .	4,705

The total value of the school houses, furniture and land is \$581,600. The following table gives the value of the school property in detail:

High school buildings, furniture, and land, . . . . .	\$113,000 00
Bigelow school house, furniture, and land, . . . . .	44,000 00
Underwood school house, furniture, and land, . . . . .	24,000 00
Lincoln school house, furniture, and land, . . . . .	5,500 00
Eliot school house, furniture, and land, . . . . .	19,000 00
Jackson school house, furniture, and land, . . . . .	15,000 00
Adams school house, furniture, and land, . . . . .	22,500 00
Claffin school house, furniture, and land, . . . . .	35,000 00
Pierce school house, furniture, and land, . . . . .	32,000 00
Davis school house, furniture, and land, . . . . .	13,000 00
Franklin school house, furniture, and land, . . . . .	15,500 00
Barnard school house, furniture, and land, . . . . .	21,000 00
Williams school house (old), and land, . . . . .	10,000 00
Williams school house (new), furniture, and land, . . . . .	35,000 00

Hamilton school house, furniture, and land, . . . . .	\$28,000 00
Prospect grammar school house, furniture, and land, . . . . .	31,000 00
Prospect primary school house, furniture, and land, . . . . .	7,500 00
Hyde school house, furniture, and land, . . . . .	24,500 00
Mason school house, furniture; and land, . . . . .	49,100 00
Rice school house, furniture, and land, . . . . .	20,000 00
Thompsonville school house, furniture, and land, . . . . .	5,000 00
Oak Hill school house, furniture, and land, . . . . .	12,000 00
Total, . . . . .	<u>\$581,600 00</u>

**Schools.**

High School, . . . . .	1
Grammar schools, . . . . .	48
Primary schools, . . . . .	38
Mixed school, . . . . .	1
Total, . . . . .	<u>88</u>

**Teachers.**

Number of teachers in high school, . . . . .	12
Male teachers, 5 ; female teachers, 7.	
Special teachers in high school, . . . . .	4
Male teachers, 1 ; female teachers, 3.	
Number of teachers in grammar school, . . . . .	48
Male teachers, 10 ; female teachers, 38.	
Number of teachers in primary schools, . . . . .	38
Number of teachers in mixed school, . . . . .	1
Special teachers of sewing, . . . . .	3
Special teachers of music, . . . . .	1
Whole number of teachers, . . . . .	107
Male teachers, 17 ; female teachers, 90.	

**Enrolment and Attendance.**

Whole number of pupils enrolled, 1889-90. . . . .	4,363
Whole number of pupils enrolled, 1888-89. . . . .	4,283
Increase, . . . . .	80
Average whole number of pupils enrolled, 1889-90, . . . . .	3,729.4
Average whole number of pupils enrolled, 1888-89, . . . . .	3,738.7
Decrease, . . . . .	9.3
Average number of pupils in daily attendance, 1889-90, . . . . .	3,406.5
Average number of pupils in daily attendance, 1888-89, . . . . .	3,570
Decrease, . . . . .	163.5
Average per cent. of daily attendance, 1889-90, . . . . .	91.3
Average per cent. of daily attendance, 1888-89, . . . . .	92.4
Decrease, . . . . .	1.1
Whole number of tardinesses, 1889-90, . . . . .	2,931
Whole number of tardinesses, 1888-89, . . . . .	3,797
Decrease, . . . . .	866
Whole number of pupils enrolled in evening schools, 1889 (males, 81 ; females, 42), . . . . .	181
Whole number of pupils enrolled in evening schools, 1888, . . . . .	191
Decrease, . . . . .	10
Average number in attendance in evening schools, 1889, . . . . .	95
Average number in attendance in evening schools, 1888, . . . . .	115
Decrease, . . . . .	20

The following table shows the total enrolment, average whole number, average attendance, and per cent. of attendance in the schools from 1881 to 1890, a period of ten years.

The increase in the total enrolment during this period was 686; in the average whole number, 884.7; in the average attendance, 818.2:

YEARS.	Total Enrolment.	Average Whole Number.	Average Attendance.	Per cent. of Attendance.
1881 . . . .	3,677	2,814.7	2,588.3	91
1882 . . . .	3,759	3,092.7	2,796.7	90.4
1883 . . . .	4,002	3,170.3	2,903.8	91.6
1884 . . . .	3,963	3,275.9	2,992.9	91.4
1885 . . . .	4,029	3,356.5	3,047.2	90.8
1886 . . . .	4,106	3,527.7	3,238.8	91.8
1887 . . . .	4,237	3,665.7	3,357.1	91.3
1888 . . . .	4,213	3,650	3,384	92
1889 . . . .	4,283	3,738.7	3,570	92.4
1890 . . . .	4,363	3,729.4	3,406.5	91.3

A more detailed exhibit of the statistics of the schools will be found in the tables appended to this report.

Table I shows the number of persons in the city between five and fifteen years of age, May 1, 1881-90.

Table II shows the number of rooms, halls, sittings, pupils, teachers, and number of pupils to a teacher in each school, May 1, 1890.

Table III shows the number of pupils of different ages in each school, May 1, 1890.

Table IV shows the semi-quarterly attendance, by schools, for the year ending June 30, 1890.

Table V shows the total enrolment, attendance, etc., by schools, for the year ending June 30, 1890.

Table VI shows the number of pupils, and their average age, by grades, in September, 1889.

Table VII shows the annual enrolment in each grade in September, 1880-89.

Table VIII shows the percentage of the total annual enrolment in each grade, in September, 1880-89.

Table IX shows the distribution of the pupils in the

High School, by grades and courses of studies, for the year ending June 30, 1890.

### Remarks on the Census.

In conformity to the requirements of the Public Statutes, an enumeration of the school population of the city was made in May last, and a record of the same has been deposited in this office.

The school population of the City on the first day of May, 1890, was 4,241, an increase of 39 compared with the year 1889. By reference to table I in the appendix to this report, it will be seen that there is an increase in each of the wards except the fourth and fifth.

The number of pupils between five and fifteen years of age attending the public schools, on the first day of May, 1890, was 3,362; the number in private schools was 237; making the total number of pupils between five and fifteen years of age in the public schools of the city, and in private schools, on the first day of May, 1890, 3,599. Deducting this sum from 4,241, the total school population of the city, we have 642, which is the number of persons in the city, between five and fifteen years of age, not attending any school, public or private, on the first day of May, 1890. Of this number 65 were at work in mills or elsewhere, and 577, most of whom were under eight years of age, were at home.

### School Houses.

The number of school houses is twenty-two. The number in use during the past year was twenty-one. The whole number of sittings is 4,705.

A new school house of six rooms is now in process of erection in Newtonville and is rapidly approaching completion. It is expected to be ready for occupancy at the opening of the schools in September. It will be occupied by

the higher grammar grades of ward two, and will accommodate 288 pupils. No pains have been spared to make this a model school building.

The City Council has also contracted for the erection of a new school house of four rooms at Waban. Work will be begun on this building at an early day, and it will probably be ready for occupancy in September of next year.

Permanent improvements have been made in several of the school buildings during the past year. The most important of these is the furnishing of better means of ventilation in the Jackson, Davis, Franklin, Hamilton, Prospect, and Mason school houses. In these buildings the air in the ventilating ducts is heated, and the results are quite satisfactory. Although the air in the school rooms is constantly changing, fresh air being admitted in large volumes to take the place of the vitiated air that passes off through the ventilating ducts, neither the difficulty nor the cost of heating has been increased. When this system of ventilation is thoroughly understood by teachers and janitors, it will, in my judgment, secure a larger supply of good air and a more uniform temperature, and at the same time the difficulty and cost of heating will be materially diminished.

The air in the ventilating ducts of the Lincoln, Eliot, Adams, Pierce, and Hyde school houses is not heated, and in some of these buildings the inlets for the fresh air are of insufficient capacity. As a consequence the attempts to secure thorough ventilation have been only partially successful. When these defects are remedied the ventilation of our school buildings will be complete and effective. The attention of the committee on public property has been called to this matter, and the importance of prompt action has been urged.

The basement walls of the school buildings have been whitewashed during the past year. This work is of great importance in that it concerns the health of pupils and



teachers. It should be repeated at intervals of not more than two years.

The blackboards of the Eliot, Jackson, Claflin, Barnard, Prospect, and Mason school houses have been repaired during the past year. Those of the Bigelow, Adams, Davis, Franklin, Williams, Hamilton, and Hyde should be repaired during the coming year. The furniture of most of the buildings is also in need of repairs. In some buildings it needs only to be cleaned and varnished, while in others, in which the repairs have been neglected for a good many years, it should be scraped, shellaced, and varnished. Cleanliness and economy require that all the school furniture should be cleaned every year, and varnished every second or third year.

The walls and ceilings of some of the school houses should receive the attention of the City Council during the coming year. This is especially true of the Bigelow, Jackson, Adams, Claflin, Davis, Mason, and High school buildings. The outside of some of the buildings should be painted.

### **Cost of the Schools.**

The amount expended for school purposes, exclusive of evening schools and new school buildings, under the direction of the School Board, during the past school year was \$118,408.06, being an average of \$31.74 per pupil. The slight advance in the cost per pupil compared with that of last year, is due, not to any unusual expenditures, but to the decrease in the average whole number of pupils enrolled. This decrease was caused by the prevalence of "la grippe" which compelled the prolonged absence of many pupils and the withdrawal of not a few. The amount expended under the direction of the City Council, chiefly for improved sanitation, was \$8,882.73. The aggregate amount expended was \$127,290.79, being an average of \$34.13 per pupil, and



an increase of 99 cents per pupil compared with that of last year. This increase is due partly to the falling of in the average whole number of pupils enrolled, but chiefly to the larger expenditures for permanent improvements, being about thirty per cent. in excess of those of the preceding year.

The expenditures of the Board include the following items: teachers' salaries, \$91,026.43; salary of superintendent, \$3,000; salary of secretary, \$300; salaries of janitors, \$6,870; fuel, \$7,155.63; incidentals, \$9,464.85.

The incidental expenses include the following items: books, \$2,441.75; school supplies, \$3,175.04; janitor's supplies, \$127.18; repairs, \$890.94; furniture, \$119.85; printing, \$392.10; water, \$537.31; gas, \$120.60; truancy, \$318.72; miscellaneous, \$1,273.00.

The amount expended for evening schools was \$591.15.

The amount expended for new school buildings was \$18,666.52.

The following table shows the cost of the schools, exclusive of the amount expended for evening schools and new school buildings, from 1881 to 1890. It also shows the cost per pupil based upon the average whole number belonging. The average cost per pupil for the ten years was \$33.72.

**Cost of the Schools, 1881-1890.**

YEAR.	Whole Cost.	Average Whole Number.	Cost per Pupil.
1881	\$87,669.48	2,844.7	\$30.82
1882	94,885.43	3,092.7	30.68
1883	119,359.75	3,170.3	37.65
1884	109,103.42	3,185.9	34.25
1885	111,632.56	3,356.5	33.25
1886	121,154.20	3,527.7	34.35
1887	124,718.13	3,655.7	34.11
1888	127,110.10	3,650	34.82
1889	123,918.94	3,738.7	33.14
1890	127,290.79	3,729.4	34.13

The comparative cost of the schools may be gathered from the following tables. The first is a graduated table in which the cities of the State are numerically arranged according to the percentage of their taxable property appropriated to the support of public schools for the year 1889-90. The second is a similar exhibit of the cities and towns of Middlesex county.

The statistics of the schools of the State and county are inserted here for the convenience of those who do not have access to the report of the secretary of the State Board of Education, from which they are taken.

Comparing the towns and cities of the State with reference to the percentage of their taxable property appropriated to the support of public schools during the past year, we find that Newton is the fifteenth among the twenty-five cities of the State, the thirty-seventh among the fifty-four cities and towns of Middlesex county, and the two hundred thirty-ninth among the three hundred fifty-one cities and towns of the Commonwealth.

Comparing the towns and cities with reference to the average cost per pupil, based upon the average whole number belonging, we find that Newton holds the second place in the county and the sixth in the State.

## CITIES OF THE STATE.

For 1889-90 by the State valuation of 1889.	CITIES.	Percentage of valuation appropriated to Public Schools, equivalent to Mills and hundredths of Mills.	For 1889-90 by the State valuation of 1889.	CITIES.	Percentage of valuation appropriated to Public Schools, equivalent to Mills and hundredths of Mills.
1	Gloucester . . . .	%.004.03	14	Salem . . . . .	%.003.15
2	Woburn . . . . .	.003.83	15	Newton . . . . .	.003.09
3	Malden . . . . .	.003.75	16	Lowell . . . . .	.003.09
4	Waltham . . . . .	.003.62	17	Holyoke . . . . .	.003.07
5	Quincy . . . . .	.003.52	18	Worcester . . . . .	.003.04
6	Taunton . . . . .	.003.52	19	Lynn . . . . .	.002.97
7	Haverhill . . . . .	.003.50	20	Fall River . . . . .	.002.94
8	Somerville . . . . .	.003.50	21	New Bedford . . . . .	.002.80
9	Fitchburg . . . . .	.003.41	22	Springfield . . . . .	.002.68
10	Chelsea . . . . .	.003.32	23	Lawrence . . . . .	.002.67
11	Northampton . . . . .	.003.25	24	Newburyport . . . . .	.002.16
12	Brockton . . . . .	.003.21	25	Boston . . . . .	.001.95
13	Cambridge . . . . .	.003.19			

CITIES AND TOWN OF MIDDLESEX COUNTY.					
For 1889-90 by the State valuation of 1889.	CITIES AND TOWNS.	Percentage of valuation appropriated to Public Schools equivalent to Mills and hundredths of Mills.	For 1889-90 by the State valuation of 1889.	CITIES AND TOWNS.	Percentage of valuation appropriated to Public Schools equivalent to Mills and hundredths of Mills.
1	Wilmington . . .	\$ .004.86	28	Somerville . . . .	\$ .003.50
2	Marlborough . . .	.004.85	29	Melrose . . . . .	.003.36
3	Westford . . . .	.004.67	30	Pepperell . . . . .	.003.28
4	Natick . . . . .	.004.42	31	Framingham . . . .	.003.26
5	Stoneham . . . .	.004.39	32	Boxborough . . . .	.003.24
6	Holliston . . . .	.004.29	33	Cambridge . . . . .	.003.19
7	Ashby . . . . .	.004.08	34	Maynard . . . . .	.003.17
8	Wakefield . . . .	.004.06	35	Watertown . . . . .	.003.16
9	Ashland . . . . .	.003.99	36	Lowell . . . . .	.003.09
10	Hudson . . . . .	.003.97	37	Newton . . . . .	.003.09
11	Ayer . . . . .	.003.89	38	Sherborn . . . . .	.003.07
12	Medford . . . . .	.003.85	39	Tyngsboro' . . . . .	.003.04
13	Arlington . . . .	.003.83	40	Everett . . . . .	.002.88
14	Chelmsford . . . .	.003.83	41	Lexington . . . . .	.002.85
15	Woburn . . . . .	.003.83	42	Tewksbury . . . . .	.002.76
16	Hopkinton . . . .	.003.81	43	Bedford . . . . .	.002.68
17	Littleton . . . . .	.003.78	44	Carlisle . . . . .	.002.62
18	Malden . . . . .	.003.75	45	Belmont . . . . .	.002.58
19	Reading . . . . .	.003.73	46	Weston . . . . .	.002.58
20	Shirley . . . . .	.003.66	47	Sudbury . . . . .	.002.49
21	Waltham . . . . .	.003.62	48	Dunstable . . . . .	.002.48
22	Winchester . . . .	.003.61	49	Billerica . . . . .	.002.36
23	N. Reading . . . .	.003.58	50	Stow . . . . .	.002.36
24	Wayland . . . . .	.003.58	51	Burlington . . . . .	.002.31
25	Concord . . . . .	.003.56	52	Dracut . . . . .	.002.19
26	Townsend . . . . .	.003.53	53	Lincoln . . . . .	.001.84
27	Acton . . . . .	.003.52	54	Groton . . . . .	.001.83

**Books and Supplies.**

The number of text books in use during the past year was 41,089, an increase of 3,175 compared with the previous year. The number of reference books was 2,079, an increase of 24. The number of books worn out at the close of the year was 5,574; the number missing was 231.

The following table shows the distribution of the books among the several schools.

SCHOOLS.	Text Books.	Reference Books.	Worn Out.	Missing.
High . . . .	7,848	242	1,090	30
Bigelow . . . .	4,673	184	771	40
Eliot . . . .	2,890	268	374	30
Adams . . . .	2,748	146	267	0
Claffin . . . .	2,846	170	323	1
Pierce . . . .	5,516	218	802	14
Williams . . . .	3,116	210	499	11
Hamilton . . . .	1,883	123	155	10
Prospect . . . .	2,738	150	334	8
Hyde . . . .	2,631	129	165	27
Mason . . . .	3,895	213	786	100
Oak Hill . . . .	305	26	6	0
Totals . . . .	41,089	2,079	5,574	231

The amount expended for new books was \$2,164.75; the amount paid for rebinding books was \$277.00; the total amount expended for books was \$2,441.75. The cost per pupil, based upon the average number enrolled, was sixty-five cents.

The amount expended for supplies was \$3,175.04. The cost per pupil was eighty-five cents.

The following table shows the amount expended for books and supplies during each school year from 1884 to 1890. It also shows the average cost per pupil. The amount expended for books includes the cost of new books and the cost of repairing old books:

School Year.	Books.	Cost per Pupil.	Supplies.	Cost per Pupil.	Total per Pupil.
1884-5	\$5,896.30	\$ 1.76	\$3,177.44	\$0.95	\$2.71
1885-6	2,953.92	.84	3,746.95	1.06	1.90
1886-7	3,842.00	1.05	2,797.37	.76	1.81
1887-8	2,078.67	.57	3,903.21	1.06	1.63
1888-9	2,315.12	.62	2,754.82	.74	1.36
1889-90	2,441.75	.65	3,175.04	.85	1.50

### Evening Schools.

The number of evening schools maintained during the past year was two — one at the Prospect school house, Newton Upper Falls, and one at the Jackson school house, Nonantum.

The Prospect school began on the twenty-ninth day of October, and closed on the nineteenth day of December. The Jackson school began on the twenty-eighth day of October and closed on the twenty-third day of December.

The Prospect school consisted of three classes — an advanced class in mechanical drawing, an elementary class in drawing, and a class of illiterates. The illiterates include those who are unable to read or write in the English language, or who have not a sufficient knowledge of numbers to meet the demands of common life. The advanced class in drawing numbered 18, the elementary class 40, and the illiterate class 18. — The total enrolment was 76.

The advanced class in drawing was in session 10 evenings, the elementary class 16 evenings, and the illiterate class 21 evenings.

Of the 18 pupils in the advanced class in drawing, 10 were present from 7 to 10 evenings each, and 8 were present from 1 to 6 evenings each. The average attendance was 11.1. Of the 40 pupils in the elementary drawing class, 15 were present from 10 to 16 evenings each, 6 from 5 to 8 evenings each, and 19 from 1 to 4 evenings each. The

average attendance was 18.4. Of the 18 pupils in the class of illiterates, 3 were present from 13 to 19 evenings each, 6 from 7 to 12 evenings each, and 4 from 1 to 4 evenings each. The average attendance was 6.1.

The Jackson school consisted of two classes — a class in mechanical drawing and a class of illiterates. The class in drawing numbered 12; the class of illiterates numbered 93 — males 51, females 42. The total enrolment was 105.

The classes were in session 25 evenings each.

Of the 12 pupils in the class in drawing, 5 were present from 17 to 24 evenings each, 3 from 12 to 15 evenings each, and 4 from 1 to 8 evenings each. The average attendance was 6.2. Of the 93 pupils in the class of illiterates, 47 were present from 16 to 25 evenings each, 15 from 10 to 15 evenings each, and 31 from 1 to 9 evenings each. The average attendance was 52.8.

Of the 93 illiterates, 35 were minors in the employment of the Nonantum Worsted Company. The attendance of these pupils at an evening school is made compulsory by a recent statute (Chapter 433 of the Acts of 1887), regulating the employment and providing for the instruction of illiterate minors. With the cordial co-operation of Mr. Ballantyne, the superintendent, and Miss Skinner, the clerk, of the Company, this statute has been enforced during the past year. The record of attendance shows the success that has attended its enforcement. The average attendance of the 35 illiterate minors was 76 per cent., while that of the 58 other illiterates was only 45 per cent.

The total enrolment in both the schools was 181. The total average attendance was 94.6.

The age of the pupils in the Prospect school ranged from 15 to 38 years, and in the Jackson school from 13 to 34 years.

The whole number of teachers employed was 10; 3 in



the Prospect, and 7 in the Jackson. I may add that it is very gratifying to be able to state that we succeeded in supplying the schools with faithful and efficient teachers without being obliged to call upon the regular teachers of the day schools.

The studies pursued were reading, spelling, writing, arithmetic and mechanical drawing.

The cost of the evening schools during the past school year was \$591.15. Of this amount \$467.00 was expended for teachers' salaries, \$35.25 for pay of janitors, and \$88.90 for incidentals. The cost per pupil, based upon the total average attendance was \$6.25. The cost per pupil for the preceding year was \$10.88.

I gave the evening schools more attention than usual during the past year, having devoted ten evenings to their inspection, and having been in constant communication with the officers of the Nonantum Worsted Company, in regard to those pupils whose attendance the statute makes compulsory. The facts that I have presented in regard to their work during the past school year, and my previous experience with this class of schools, lead me to certain conclusions to which I beg leave to invite the attention of the Board.

1. The number of illiterates at Newton Upper Falls is not sufficient to warrant the Board in making provision for their instruction the coming year. Many of the employees in the factories in that village have attended the public schools, and have nearly or quite completed the course of studies in the grammar schools, and this fact accounts for the very small percentage of illiterates to be found there.

2. The number enrolled in the drawing classes shows that there is a positive demand for instruction in mechanical drawing, and that provision should be made for the organization of one or more classes in this branch of study during the coming year.

3. The enrolment and attendance in the drawing class



at the Jackson school make it doubtful, to say the least, if the Board would be justified in continuing the instruction in this branch of study.

4. The illiterate population, on the other hand, will furnish an abundance of material for a large and successful school. The whole number of illiterates, above ten years of age, in the City of Newton, in 1885, was 810. It is probable that the number has increased since that time on account of the immigration of the French population from Canada. The strict and persistent enforcement of the illiterate minor act, year after year, will do much to convert this foreign element into intelligent and self-respecting American citizens.

5. The attendance in all the classes, with the exception of that of the thirty-five illiterate minors already referred to, was quite unsatisfactory. In this respect our experience is not exceptional. Irregular attendance is the rule wherever, throughout the state, evening schools are maintained. The exceptions, so far as I am informed, are not sufficient to prove the rule.

With a view to the improvement of the evening schools during the coming season, I recommend:

1. That they be opened on the first Monday in October, and that they continue till the beginning of the Christmas holidays.

2. That arrangements be made for registering, during the week preceding the opening of the schools, the names of all applicants for admission.

3. That all applicants, with the exception of illiterate minors, to whom the law of 1887 is applicable, be required to deposit the sum of not less than one nor more than two dollars, as a guarantee for punctual and constant attendance and good conduct, the deposit to be refunded if the attendance and conduct are satisfactory. This deposit plan, I may add, has been adopted in various cities and towns in the

state, and has thus far worked more satisfactorily than any other plan that has been tried.

The above suggestions and recommendations are respectfully submitted for your consideration.

### **Mid-Year Promotions.**

The whole number of mid-year promotions during the past year was 185. Of these 132 secured a second promotion at the close of the year.

The plan of mid-year promotions has been in operation in our schools five years. Its objects and scope have been presented so fully in previous reports that the ground need not be traversed again at the present time. It is enough to say that the results are thus far highly encouraging. It is especially gratifying to note with what intelligent appreciation the plan has been received by the patrons of the schools, and with what zealous interest that have assisted in its execution. In my last annual report I recommended that "the classical course in the High School be extended to five years, and that it be so arranged that the work may be completed in four years, the time in each case to depend upon the ability of the pupils, and the choice of the parents." I also remarked that "with such an adjustment of the work pupils of greater mental and physical maturity may complete the course in four years, while the less mature may take the longer course of five years." With the adoption of this recommendation the plan of mid-year promotions is made complete, its advantages being now within reach of every pupil of every grade.

### **Graduates of the Schools.**

The number of diplomas awarded in the several grammar schools was 199. They were distributed as follows: Bigelow 37, Eliot 12, Adams 15, Claflin 15, Pierce 31,

Williams 19, Hamilton 8, Prospect 14, Hyde 16, Mason 32.

The number of High School certificates awarded in the several grammar schools was 183. They were distributed as follows: Bigelow 27, Eliot 11, Adams 15, Claflin 14, Pierce 30, Williams 19, Hamilton 8, Prospect 11, Hyde 16, Mason 32.

The number of pupils graduated from the High School was 65. Of these 29 had completed the general course, 18 the classical course, 7 the Institute course, and 11 the mercantile course.

The number of graduates of the High School who took the final examinations for admission to the colleges and the Institute of Technology in June was 13; at Harvard 5, at Boston University 2, at Yale 1, at Vassar 1, at the Institute of Technology 4. Eleven were admitted without conditions, one was conditioned in English and one in French.

One of the applicants at Harvard received honors in four subjects—advanced Latin, advanced Greek, Latin composition, and Greek composition.

One of the applicants at Boston University received an honor in Latin.

The whole number of conditions received in the final examinations was 2; the whole number of honors was 5.

The number admitted by certificate was 7; at Smith 6 and at Wellesley 1.

The number of pupils of the High School who took the preliminary examinations was 13; at Harvard 6, at Yale 2, at Boston University 1, at the Institute of Technology 4. Ten passed without conditions, one was conditioned in Latin grammar, one in Greek, and one in plane geometry and the metric system.

Two of the applicants at Harvard received three honors each—one in Greek, Latin, and German, the other in Greek, Latin, and history. One of the applicants received honors in

two subjects — Greek and history, and one received an honor in history.

The whole number of conditions received in the preliminary examinations was 4; the whole number of honors was 9.

The above record is certainly very gratifying, and is highly creditable to both teachers and pupils.

### **High School Accommodations.**

The subject of High School accommodations is one of paramount importance at the present time, in that it is so closely related to the educational and material interests of the city. Its importance is my apology for again urging the subject upon your attention.

“The total enrolment in the High School the present school year,” I quote from my monthly report of February 26,” is, in round numbers, 475. Of these, 150 live in wards five and six, and a large percentage of them are at so great a distance from the High School building that it would be imprudent if not impossible for them to walk to school. The distance being practically prohibitive, they must use some means of conveyance or they must forego the educational advantages of the High School. Is it necessary that these pupils, constituting nearly one-third of the present total enrolment of the school, should continue to be subjected to these inconveniences and disabilities? We make generous provision for our grammar schools, supplying one to each of ten villages. Our primary schools are even more numerous and are placed as near as possible to the homes of the children who attend them. In other words it has been the policy of this city for many years to bring its schools within easy reach of those who wish to avail themselves of their advantages. Is there any reason why a similar policy should not be pursued in regard to the High School? Nay, more, has not the time arrived when additional facilities for secondary instruction are needed and demanded?

I have given much time and thought to this subject; I have tried to look at it on all sides, and to weigh without prejudice all the arguments for and against it; and I am clearly of the opinion that the best interests of the city would be promoted by the establishment of an English High School in such location as will best accommodate the people of wards five and six, and I respect-

fully submit for your consideration some of the facts that have impelled me to this conclusion.

1. The High School is large enough to warrant its division. It has already reached the limit of economic administration, and whatever gain may result from a further concentration of numbers in the future, will be more than compensated by losses in other directions. I should be unwilling to say that a high school of five hundred or even six hundred pupils is unwieldy by reason of its size, but it will be generally admitted, I think, that other things being equal, a greater degree of efficiency will be more likely to exist in a high school of from three hundred to four hundred pupils than in one of from four hundred to five hundred. This is especially true in regard to the discipline of the school. The object of discipline in the school as in the home is the development of character. To secure the best results in this direction, the master of the school, being responsible for its discipline, should be personally acquainted with every pupil. A school that has outgrown this limit has within it an element of weakness. The academic work of the school is subject to similar conditions, although not to so great an extent.

2. The establishment of an English High School in the southern section of the city would probably increase the aggregate number of pupils that would attend the high schools, in that it would attract a considerable number of those who are obliged to forego the privileges of the present school on account of the cost of conveyance.

3. The establishment of the proposed school is in the interests of economy. The annual cost of the two schools will probably exceed that of the present school by from six to seven thousand dollars. This is the additional annual cost to the city. To be set against this is the amount paid by individuals for conveyance. The average cost per pupil for this purpose is about forty dollars (\$40) a year. If all the pupils now attending the school from wards five and six were to come by rail, that is, were to avail themselves of the same facilities that are used by pupils in the northern section of the city, the aggregate cost would amount to six thousand dollars. The average cost per pupil for conveyance to the proposed school will be about twenty dollars a year. It is probable that about one-third of the whole number, or fifty pupils, would go by rail. The aggregate cost for the conveyance of these pupils would be one thousand dollars. Thus by the establishment of the proposed school the pupils in the southern section of the city are placed upon a footing of substantial equality, so far as high school facilities are concerned, with those of the northern section, with a net annual saving of five thousand dollars in the cost to individuals for conveyance. This

estimate, you will observe, is purely a financial one. It leaves out of the account the inconvenience caused by the early breakfasts and late dinners that are a necessity to those whose homes are remote from the school, the danger to health on account of exposure to the rigors and sudden changes of our New England climate, the liability to accidents, and the many hours of valuable time wasted in travel.

I have also left out of the account the cost of the plant. The reasons for this are obvious. In the present High School building there is only one unoccupied class room. This room is capable of accomodating from forty to fifty pupils. The average number of pupils belonging to the school in 1885 was 350. The average number belonging during the first half of the present school year was 440, being an increase of 90 pupils, or 25 per cent., in five years. If this rate of increase continues, additional accommodations will be needed before the expiration of three years. In other words it will soon be necessary to expend \$50,000 for a new High School building. What matters it whether the building be located here or elsewhere? The cost in either case will be the same.

It has been shown that the establishment of the proposed school will result in a large saving of expense to individuals. But this is not all. It will enhance the value of property already existing. It will quicken enterprise, and stimulate activity in the creation of new property. In the southern section of the city, and within easy reach of the railroads, are large tracts of unoccupied lands which in beauty and healthfulness are unsurpassed by any in the city. The development of these the proposed school will help to hasten. The result of all this to the city will be a large increase in the amount and value of taxable property, and a larger annual income to the city treasury. Indeed, leaving out the educational advantages of the proposed school, and viewing it simply as a business enterprise, I doubt if the city can make a better investment.

It seems to me, therefore, that every consideration of public or private interest demands the establishment of the proposed school.

4. Allow me to add a few words in regard to the character of the proposed school. Its curriculum should be the same as that of our present High School with the omission of Greek. English, language, history, mathematics, modern languages, Latin, physics, chemistry, in short, all the branches of study now pursued in our High School, except Greek, should be taught in the proposed school, and with equal thoroughness. A school thus organized would meet all the needs of those students who take the three years' course as a preparation for business, of those who



take the full course of four years, of those who are to enter the Institute of Technology and other schools of science, and of those who are to enter those colleges in which Greek is not an essential requisite for admission. To be more specific, it would prepare its pupils for admission to the scientific course at Amherst, Dartmouth, Wellesley, and Vassar Colleges, to the literary and scientific course at Smith College, to the philosophical course at Tufts College and Boston University, to the Sheffield Scientific School at Yale College, to the Massachusetts Institute of Technology, and to Harvard College. The Boston English High School and our own High School are now working along the lines I have indicated. The Boston English High School sent students to Harvard College last year, and has others who are in course of preparation. Indeed, if the colleges generally shall follow the lead of Harvard in modifying their requirements for admission the distinction between an English High School and a Classical High School will soon disappear. An English High School doing broad and thorough work will meet all the essential requirements of our colleges.

"Classical Schools," says President Eliot, in his last report, "are giving more attention than formerly to modern languages and experimental science, and schools of a new sort are preparing boys for Harvard College, namely, schools which teach thoroughly Latin, mathematics, modern languages, and experimental science, but do not teach Greek."

A division of the school on other lines is possible. Much can be said in favor of separate schools for boys and girls. Much might be said also in favor of the establishment of a separate classical school, were it not for the trend of thought in the colleges in regard to the requirements for admission. But whatever may be said in behalf of any plan, this fact remains, namely, that any division that may be made, except on sectional lines, will fail to satisfy those citizens who live in the southern section of the city, will fail to meet the present just demands for the extension of our educational privileges, and will fail to anticipate and provide for the needs of the future."

By vote of the Board the foregoing report was referred to a special committee, consisting of His Honor the Mayor, Mr. Hyde, and the High School Committee. At the regular meeting of the Board in March last, this committee reported as follows:

"The special committee, to which was referred the recommendation of the Superintendent to establish an English High

School in the southern section of the city, has given the subject careful consideration and submits the following report :

It is claimed that the High School was established for the benefit of the whole city, that it is maintained by public taxation, and that consequently its advantages should be shared equally by all sections of the city. It is also claimed that the residents of the southern section, by reason of their remoteness from the school, are debarred from the enjoyment of its privileges, or avail themselves of them at considerable expense and inconvenience as compared with the more favored sections.

Furthermore, it is believed that justice requires that measures be taken to remove these inequalities and to secure a more equitable distribution of educational facilities.

Your committee believes that these claims are just and proper, and that the establishment of the proposed school will subserve the interests of the whole city ; yet, in view of the fact that one school building is now in process of erection, that others have been recommended by the School Board, and are under consideration by the City Council, and that a large increase in the city debt is anticipated the present year, it is recommended that definite action in regard to the matter be postponed for the present.

Your committee, however, is of the opinion that the proposed school should be established, within a few years at the farthest, and that the accomplishment of this result should be kept constantly in view."

I again commend the subject to your thoughtful consideration.

### **Supervision of the Schools.**

In the discharge of my duties as Superintendent during the past year, besides attending to the special work required of me from time to time by the Board and by standing committees, and the preparation of four monthly reports and my annual report, I have made one examination of every primary and grammar class in reading, and have examined some classes two or three times each. I have also made twelve written examinations of grades three to nine, several oral and written examinations of grade two, and two or more oral and written examinations of grade one.



I have made between six and seven hundred visits to the schools, have visited thirty-one towns and cities in search of teachers, and for this purpose have travelled a little more than twelve hundred miles.

I have also attended twelve meetings of the Board and forty-two meetings of standing and special committees, and have held thirty-two meetings of teachers.

The rest of my time has been given to the purchase and distribution of supplies, and to personal interviews with teachers and parents, relating chiefly to the details of instruction and discipline.

In closing my official relations with the schools of Newton, I desire to acknowledge my deep obligations to the members of the Board for their unfailing confidence and support, to return to the teachers my sincere thanks for their constant sympathy and co-operation, to bespeak for my successor the kindly aid of both teachers and Committee, and to wish for our schools the largest measure of prosperity and usefulness.

THOMAS EMERSON,

*Superintendent of Schools.*

NEWTONVILLE, August 15, 1890.



# APPENDIX.

## STATISTICS IN DETAIL.

TABLE I.—Number of persons in the City between five and fifteen years of age, May 1, 1881-90, by wards.

WARDS.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	Increase.	Decrease.
I. . .	453	463	512	541	527	545	582	618	642	644	2	—
II. . .	603	645	699	705	705	717	732	768	795	833	38	—
III. . .	449	506	519	543	531	594	598	617	658	684	26	—
IV. . .	523	562	554	567	593	602	599	629	640	621	—	19
V. . .	436	470	460	464	423	480	486	532	553	513	—	40
VI. . .	494	549	558	559	560	559	601	608	621	649	28	—
VII. . .	294	263	262	274	272	288	295	315	293	297	4	—
Totals . .	3,252	3,458	3,564	3,653	3,611	3,785	3,893	4,087	4,202	4,241	98	59

TABLE II.—Number of rooms, halls, sittings, pupils, teachers, and number of pupils to a teacher in each school, May 1, 1890.

SCHOOLS.	Rooms Occupied.	Rooms Unoccupied.	Halls.	Sittings.	Number of Pupils.			Number of Teachers.	Number of Pupils to a Teacher.
					Girls.	Boys.	Total.		
High . . . . .	17	0	0	567	231	171	402	*12	33.5
Bigelow . . . . .	8	0	1	381	186	153	339	8	42.4
Underwood . . . . .	4	0	0	194	76	101	177	4	44.3
Lincoln . . . . .	2	0	0	96	22	44	66	2	33
Eliot . . . . .	4	0	0	193	57	80	137	4	34.3
Jackson . . . . .	5	1	0	249	95	123	218	5	43.6
Adams . . . . .	6	0	0	280	116	126	242	6	40.3
Clafin . . . . .	6	0	0	232	132	119	251	6	41.8
Peirce . . . . .	6	0	0	265	124	106	230	6	38.3
Davis . . . . .	4	0	0	202	83	92	175	4	43.8
Franklin . . . . .	4	0	0	208	85	90	175	4	43.8
Barnard . . . . .	3	1	0	147	67	55	122	3	40.7
Williams . . . . .	8	0	0	370	147	140	287	8	35.9
Hamilton . . . . .	4	0	1	163	53	56	109	4	27.3
Prospect . . . . .	6	2	1	266	115	102	217	6	36.2
Hyde . . . . .	6	0	0	283	125	120	245	6	41
Mason . . . . .	7	1	1	306	138	132	270	7	38.6
Rice . . . . .	4	0	0	218	96	95	191	4	47.8
Thompsonville . . . . .	1	1	0	49	14	22	36	1	36
Oak Hill . . . . .	1	1	0	36	9	9	18	1	18
Totals . . . . .	106	7	4	4,705	1,971	1,936	3,907	101	38.3

\*Also for special teachers.

TABLE III.—Number of pupils of different ages in each school, May 1 1890.

Schools.	Under 5 years.	5 to 6.	6 to 7.	7 to 8.	8 to 9.	9 to 10.	10 to 11.	11 to 12.	12 to 13.	13 to 14.	14 to 15.	Over 15.
High . . . . .	0	0	0	0	0	0	0	0	0	2	42	358
Bigelow . . . . .	0	0	0	0	3	21	51	51	55	68	45	45
Underwood . . . . .	0	13	38	37	51	27	7	1	2	1	0	0
Lincoln . . . . .	5	9	16	8	11	7	6	2	2	0	0	0
Eliot . . . . .	0	0	0	0	5	13	21	24	31	15	17	11
Jackson . . . . .	2	26	47	38	40	21	29	5	5	4	1	0
Adams . . . . .	0	5	19	25	22	21	29	30	26	25	21	19
Clafin . . . . .	2	13	22	15	26	26	16	23	20	32	25	31
Peirce . . . . .	0	0	0	0	0	0	5	38	53	62	39	33
Davis . . . . .	0	18	23	24	32	17	31	14	10	5	1	0
Franklin . . . . .	0	17	22	18	27	26	15	25	13	5	3	4
Barnard . . . . .	0	3	11	17	21	23	16	17	7	6	0	1
Williams . . . . .	0	15	16	16	27	24	38	31	40	26	26	28
Hamilton . . . . .	0	12	10	8	9	12	14	6	12	10	10	6
Prospect . . . . .	7	7	26	25	16	22	18	25	15	26	20	10
Hyde . . . . .	6	28	21	18	17	23	20	29	16	20	23	24
Mason . . . . .	0	0	0	0	6	19	42	43	49	51	41	19
Rice . . . . .	1	27	39	34	41	21	18	5	5	0	0	0
Thomsonville . . . . .	0	5	12	13	3	1	0	1	1	0	0	0
Oak Hill . . . . .	0	3	3	0	3	2	3	0	1	0	2	1
Totals . . . . .	23	201	325	296	360	326	379	370	363	358	316	590

TABLE IV.—Semi-quarterly attendance, etc., by schools, for the year ending June 30, 1890.

Schools.	I.						II.						III.						IV.					
	Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Cor-poral Punishment.		Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Cor-poral Punishment.		Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Cor-poral Punishment.		Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Cor-poral Punishment.	
High . . .	450.0	430.0	95.6	43	0		445.6	420.6	94.4	115	0		437.4	406.0	92.8	104	0		418.2	362.8	86.7	162	0	
Bigelow . .	325.3	311.0	95.7	11	1		333.0	314.8	94.6	7	0		320.5	292.5	91.4	8	0		307.1	261.7	85.4	21	0	
Underwood .	163.1	150.5	92.1	23	0		163.4	150.4	92.1	28	0		151.2	129.0	84.8	32	0		150.8	116.5	78.2	29	0	
Lincoln . .	55.7	51.7	92.6	12	0		51.4	47.8	92.8	12	0		54.3	50.6	92.6	9	0		51.6	41.1	79.7	23	0	
Elmer . . .	158.6	140.7	89.0	5	0		151.5	130.3	86.4	9	0		148.2	131.1	88.7	5	0		138.6	105.1	75.5	9	0	
Jackson . .	196.3	177.9	90.8	16	0		189.6	175.6	92.6	16	3		189.8	168.8	89.1	18	4		183.9	153.1	83.4	21	1	
Adams . . .	227.6	213.9	93.8	6	0		237.0	223.4	94.3	2	3		237.0	218.5	92.4	14	4		221.5	186.8	84.3	11	0	
Claffin . . .	225.9	223.7	99.0	1	0		239.5	227.6	95.0	19	3		235.5	223.7	94.8	25	0		236.0	207.6	87.6	15	2	
Peirce . . .	230.2	221.9	96.4	6	4		227.7	217.4	95.4	6	5		230.5	219.8	95.3	7	3		224.7	196.2	87.2	8	2	
Davis . . .	151.3	144.9	95.6	9	0		159.5	149.7	93.5	9	0		170.9	161.1	94.4	8	0		168.5	146.3	86.7	8	0	
Franklin . .	149.3	139.0	93.2	13	3		148.6	138.5	93.3	24	1		146.7	134.7	91.9	14	3		143.8	118.0	81.8	9	2	
Barnard . .	107.1	100.8	93.8	10	0		114.9	109.8	95.0	7	1		118.0	112.9	95.0	12	1		114.3	96.1	83.0	4	2	
Williams . .	301.4	284.0	94.3	21	0		305.4	284.7	93.4	20	0		289.2	267.3	91.7	19	0		270.4	224.8	81.9	5	2	
Hamilton . .	103.1	98.8	95.5	5	1		113.6	108.2	94.8	5	1		115.8	111.9	96.5	9	3		108.1	94.7	86.6	2	2	
Prospect . .	195.6	185.1	94.2	10	1		197.2	189.5	96.1	14	0		199.8	190.5	95.0	24	0		201.1	172.0	85.3	23	0	
Hyde . . .	231.0	216.6	93.7	18	1		234.8	215.3	91.9	47	2		232.9	213.4	91.6	57	4		225.3	179.6	80.3	51	1	
Mason . . .	283.9	266.7	93.8	13	0		291.1	272.6	93.7	18	1		286.2	264.3	92.1	18	3		270.0	230.8	85.5	25	0	
Rice . . .	170.8	151.3	88.7	17	0		170.5	154.2	90.4	5	0		166.9	150.7	90.2	28	0		166.9	134.6	80.7	30	0	
Thompson's	27.7	24.6	88.8	2	0		29.4	26.3	89.5	3	0		29.1	27.2	93.4	2	0		30.0	25.7	85.6	1	0	
Oak Hill . .	15.1	14.6	96.2	0	0		16.3	14.6	89.5	1	0		19.0	16.9	89.1	2	0		18.0	12.8	70.9	9	0	

TABLE IV, (Concluded).—Semi-quarterly attendance, etc., by schools, for the year ending June 30, 1890.

SCHOOLS.	V.						VI.						VII.						VIII.					
	Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Corporal Punishment.		Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Corporal Punishment.		Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Corporal Punishment.		Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Corporal Punishment.	
High . . .	415.7	384.6	91.9	164	0		411.5	380.4	92.4	165	0		391.1	361.1	92.3	139	0		376.7	348.9	92.6	118	0	
Bigelow . .	321.3	283.6	91.3	3	0		323.7	303.4	91.8	11	0		321.7	295.1	91.8	11	0		313.2	287.2	92.8	14	0	
Lincolnwood .	154.6	131.6	84.2	21	0		161.0	138.9	86.5	13	0		146.8	125.4	84.1	11	0		155.6	139.2	89.1	12	0	
Ellet . . .	46.9	41.1	86.2	8	0		48.3	44.1	89.3	8	0		58.5	53.5	91.5	16	0		57.0	53.6	93.9	13	0	
Jackson . .	135.3	121.0	89.0	7	0		139.0	124.7	90.4	7	0		135.9	122.2	90.6	4	0		128.3	120.6	94.1	4	0	
Adams . . .	181.5	161.2	88.7	3	0		185.6	171.5	92.3	17	1		207.6	187.1	90.3	22	3		202.5	180.2	88.8	22	0	
Clafin . . .	228.9	212.0	91.9	2	2		230.6	214.6	93.3	3	0		235.6	215.4	90.1	6	0		232.3	215.0	92.4	5	0	
Peirce . . .	237.2	218.2	91.7	20	1		243.1	221.5	90.7	11	0		245.9	226.8	92.1	31	0		248.4	232.3	93.5	20	1	
Davis . . .	236.7	224.5	94.8	7	2		231.3	218.2	94.1	3	0		228.1	215.4	94.3	16	0		216.7	203.8	94.0	11	1	
Franklin . .	169.6	159.3	94.0	5	1		177.7	166.6	93.8	2	1		169.8	155.8	91.8	6	1		166.4	155.8	93.6	5	0	
Barnard . .	146.6	136.6	92.8	5	5		151.0	140.2	92.8	6	3		165.2	152.3	92.1	18	2		154.9	143.1	92.2	7	0	
Williams . .	116.8	109.4	92.7	3	1		116.0	107.4	91.7	3	0		117.2	108.9	91.9	3	0		113.2	105.7	92.9	7	0	
Hamilton . .	264.5	236.2	88.5	8	0		266.4	243.9	90.9	4	0		279.3	257.4	92.8	13	1		271.9	248.7	91.3	1	0	
Prospect . .	106.2	98.0	92.1	7	1		103.6	98.1	91.8	4	0		109.9	105.3	95.7	6	1		108.7	100.7	92.2	10	0	
Hyde . . .	194.4	175.4	88.9	5	0		190.2	176.1	91.8	21	0		207.2	192.3	92.7	16	1		205.3	192.0	93.5	8	0	
Mason . . .	234.7	205.3	87.0	42	1		231.2	205.3	88.8	45	1		223.6	206.4	88.2	43	0		217.8	194.2	89.1	56	0	
Rice . . .	277.3	254.6	91.8	27	1		269.3	241.7	89.8	13	0		263.5	241.7	91.4	16	0		248.3	224.2	89.8	15	0	
Thompsonville	170.8	152.6	89.4	13	1		178.8	160.8	90.0	6	0		189.9	171.5	90.4	11	1		179.6	157.2	87.6	14	0	
Oak Hill . .	30.4	27.7	91.2	3	0		32.6	29.9	91.6	4	0		36.0	31.6	87.7	2	0		34.3	28.0	81.7	4	0	
	15.5	11.3	73.1	1	0		15.8	13.9	88.1	7	0		18.0	17.0	92.8	1	0		19.0	15.0	80.9	1	0	

**TABLE V.—Total enrolment, etc., by schools for the year ending June 30, 1890.**

SCHOOLS.	Total Enrolment.			Average Whole Number.	Average Attendance.	Per cent. Attendance.	Cases of Tardiness.	Cases of Cor- poral Punishment.
	Boys.	Girls.	Total					
High . . . .	207	268	475	418.5	386.8	92.4	1010	0
Bigelow . . . .	167	202	369	321.5	294.9	91.7	92	1
Underwood . .	109	84	193	155.8	134.9	86.6	169	0
Lincoln . . . .	45	21	66	53.1	47.9	92.1	101	0
Eliot . . . . .	96	80	176	142.3	124.5	87.3	45	0
Jackson . . . .	140	109	249	192.1	171.9	89.5	135	12
Adams . . . . .	139	119	258	231.7	212.5	91.7	49	9
Clafin . . . . .	127	143	270	238.9	222.7	93.2	142	7
Peirce . . . . .	126	127	253	228.2	214.5	94.0	61	17
Davis . . . . .	93	91	184	166.7	154.9	92.9	52	3
Franklin . . . .	91	93	184	150.8	137.8	91.4	94	19
Barnard . . . .	63	77	140	114.7	106.4	92.8	49	5
Williams . . . .	176	163	339	281.1	255.9	91.0	91	3
Hamilton . . . .	66	62	128	108.6	102.0	93.9	48	9
Prospect . . . .	119	115	234	198.9	184.1	92.6	121	2
Hyde . . . . .	131	134	265	230.2	204.5	88.8	359	12
Mason . . . . .	150	162	312	273.7	250.0	91.3	145	5
Rice . . . . .	111	104	215	174.3	158.2	90.8	124	2
Thompsonville .	20	14	34	31.2	27.6	88.5	21	0
Oak Hill . . . .	9	10	19	17.1	14.5	84.8	22	0
Totals . . . .	2185	2178	4363	3729.4	3406.5	91.3	2931	106



TABLE VI.—Number of pupils and their average age by grades, in September, 1889.

GRADES.	I.			II.			III.			IV.			V.			VI.		
	No. of Pupils.			No. of Pupils.			No. of Pupils.			No. of Pupils.			No. of Pupils.			No. of Pupils.		
SCHOOLS.	Av. Age.		Mos.	Av. Age.		Mos.	Av. Age.		Mos.	Av. Age.		Mos.	Av. Age.		Mos.	Av. Age.		Mos.
	Yrs.			Yrs.			Yrs.			Yrs.			Yrs.			Yrs.		
High . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bigelow . . . . .	56	6	3	78	7	10	4	8	4	9	7	2	71	11	..	12	..	4
Underwood . . . . .	28	6	3	19	8	4	..	8	..	..	..	..	..	..	..	..	..	..
Lincoln . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	51	11	3	20	11	7
Eliot . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jackson . . . . .	90	6	7	59	8	0	..	9	5	..	..	..	..	..	..	..	..	..
Adams . . . . .	41	6	6	25	7	8	4	8	4	10	1	8	29	10	8	29	11	8
Cladin . . . . .	25	6	0	25	7	8	4	8	4	9	9	7	25	11	7	29	11	11
Peirce . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	101	12	2
Davis . . . . .	50	6	2	29	7	9	4	..	..	..	0	11	23	10	..	..	..	..
Franklin . . . . .	39	6	1	38	8	4	11	9	11	10	6	9	30	11	9	..	..	..
Barnard . . . . .	29	6	9	17	8	6	1	9	1	10	1	9	22	10	9	..	..	..
Williams . . . . .	52	6	2	37	8	1	6	9	6	10	5	1	31	11	1	43	12	0
Hamilton . . . . .	20	6	1	16	7	5	0	9	0	10	4	2	11	11	2	8	12	6
Prospect . . . . .	26	5	9	31	7	1	9	8	9	9	8	4	21	10	4	23	11	9
Hyde . . . . .	54	6	2	22	7	7	10	7	10	10	2	2	35	11	2	25	12	1
Mason . . . . .	..	..	..	..	..	..	..	..	..	..	1	3	63	11	3	46	11	9
Rice . . . . .	65	6	1	61	7	8	2	9	2	..	..	..	..	..	..	..	..	..
Thompsonville . . . . .	18	6	3	13	7	7	..	..	..	..	..	..	..	..	..	..	..	..
Oak Hill . . . . .	4	5	5	2	6	9	4	8	4	..	..	..	5	9	9	..	..	..
Totals . . . . .	597	6	2	472	7	9	8	396	10	10	1	11	417	10	11	411	11	1

TABLE VI. (Concluded).—Number of pupils and their average age by grades, in September, 1889.

GRADES.	VII.			VIII.			IX.			X.			XI.			XII.			XIII.			Total Number of Pupils.
	No. of Pupils.	Yrs.	Av. Age	No. of Pupils.	Yrs.	Av. Age	No. of Pupils.	Yrs.	Av. Age	No. of Pupils.	Yrs.	Av. Age	No. of Pupils.	Yrs.	Av. Age	No. of Pupils.	Yrs.	Av. Age	No. of Pupils.	Yrs.	Av. Age	
SCHOOLS.																						
High	335	13	2	40	14	1	41	14	10	195	15	2	129	16	1	78	16	7	68	17	4	470
Bigelow	55	13	2	14	14	10	14	14	10	11	15	2	129	16	1	11	16	7	17	17	4	342
Underwood																						179
Lincoln																						60
Eliot	31	12	8	13	14	1	14	14	7													170
Jackson																						204
Adams	33	12	7	25	14	0	15	14	11													243
Clafin	27	13	2	25	14	2	16	14	7													229
Petrec	52	12	3	55	13	0	31	14	1													239
Davis																						166
Franklin																						152
Barnard																						117
Williams	40	12	7	27	13	10	15	14	1													317
Hamilton	13	12	9	9	13	4	9	13	9													119
Prospect	17	12	6	20	13	5	13	14	8													204
Hyde	24	13	7	12	13	9	18	14	7													240
Mason	41	13	3	43	13	4	36	14	1													292
Rice																						182
Thompsonville																						31
Oak Hill		12	5	2	14	3																17
Totals	335	12	9	271	13	9	208	14	5	195	15	2	129	16	1	78	16	7	68	17	4	3973

TABLE VII.—Annual enrolment in each grade in September, 1880-89.

DATE.	GRADES.													Total.
	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	XIII.	
September, 1880 . .	464	372	376	321	296	342	260	221	162	104	97	60	43	3,118
September, 1881 . .	530	386	381	394	270	312	311	211	150	114	58	77	37	3,231
September, 1882 . .	510	436	405	353	403	237	266	225	180	104	92	51	49	3,311
September, 1883 . .	514	454	436	398	369	298	210	183	166	125	78	70	40	3,341
September, 1884 . .	605	467	436	412	411	315	260	185	165	145	113	77	54	3,645
September, 1885 . .	590	425	425	469	401	337	256	243	140	140	131	92	61	3,703
September, 1886 . .	559	434	415	437	436	339	298	218	183	154	125	113	69	3,780
September, 1887 . .	555	425	407	405	434	395	245	244	192	135	132	99	76	3,744
September, 1888 . .	558	440	384	425	440	439	286	224	226	140	118	109	64	3,853
September, 1889 . .	597	472	396	396	417	411	335	271	208	195	129	78	68	3,973

TABLE VIII.—Percentage of the total annual enrolment in each grade in September, 1880-89.

DATE.	GRADES.													Total.
	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	XIII.	
September, 1880 . .	14.9	11.9	12.1	10.3	9.5	11.	8.3	7.1	5.2	3.3	3.1	1.9	1.4	100
September, 1881 . .	16.4	11.9	11.8	12.2	8.4	9.7	9.6	6.5	4.6	3.6	1.8	2.4	1.1	100
September, 1882 . .	15.4	13.2	12.2	10.7	12.2	7.2	8.	6.8	5.4	3.1	2.8	1.5	1.5	100
September, 1883 . .	15.7	13.6	13.1	11.9	11.	8.8	6.3	5.2	5.	3.7	2.4	2.1	1.2	100
September, 1884 . .	16.6	12.8	12.	11.3	11.3	8.6	7.1	5.1	4.5	4.	3.1	2.1	1.5	100
September, 1885 . .	15.9	11.5	11.5	12.6	10.8	9.	6.9	6.6	3.8	3.8	3.5	2.5	1.6	100
September, 1886 . .	14.8	11.2	11.	11.6	11.5	9.	7.9	5.8	4.8	4.1	3.5	3.	1.8	100
September, 1887 . .	14.8	11.4	10.9	10.8	11.6	10.6	6.5	6.5	5.1	3.6	3.5	2.7	2.	100
September, 1888 . .	14.5	11.4	10.	11.	11.4	11.4	7.4	5.8	5.9	3.6	3.1	2.8	1.7	100
September, 1889 . .	15.1	11.9	10.	10.	10.5	10.4	8.5	6.9	5.3	4.2	3.3	2.1	1.8	100





## HIGH SCHOOL GRADUATES.

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### Classical Course.

HELEN MINERVA COBB.	LUELLA JANE WADSWORTH.
FRANCES JULIA EGLESTON.	ALBERT PAINE CARTER.
BERTHA SUMNER JOHNSON.	FRANK STETSON EDDY.
ELEANOR HUNNEWELL NICHOLS.	WILLIAM DEAN GODDARD.
MAY GERTRUDE NORTON.	FREDERIC WILLIAM GRIGG.
LIZZIE HIGGINS PATTEN.	STEPHEN HOWARD MORSE.
KATE BEL STEVENSON.	FREDERICK SANFORD PRATT.
HARRIET CAROLINE TAYLOR.	WALTER EDWARD SANDERS.
LOUISE ELIZABETH TROWBRIDGE.	EDWARD RAY SPEARE.

### General Course.

GERTRUDE ANNIE BARKER.	FLORENCE BANCROFT SMITH.
GRACE QUINCY BIRD.	MARY CLARA SMITH.
ELLA MAY BURRILL.	
CATHERINE ELIZABETH CUNNINGHAM.	RUTH CURTIS TEBBETTS.
JOSEPHINE COOK CARPENTER.	MARY JOSEPHINE WOODWORTH.
MARGUERITE EMILY DORNEY.	EDWARD CLIFTON ALLEN.
*LILLIAN ELIZABETH ELLIS.	WILLIS GORE BANCROFT.
MAUDE FRANCES FULLER.	RUSSELL ARNOLD BALLOU, JR.
ETTA MAUDE GAREY.	CHARLES STANFIELD BANGS.
EDITH TALBOT GOULD.	EDWARD GREENLEAF BLAISDELL.
MARIAN COMPTON MANDELL.	JAMES EDWARD FARRELL.
HELEN FRANCES MAY.	HERBERT LUTHER FELTON.
MARTHA ELIZABETH RANDALL.	FRANK LYMAN JENKS.
GRACE HELEN SAFFORD.	CHESTER AUSTIN MORTON.
MARY ALICE SAWIN.	WILLIAM DAVENPORT RISING.
	CHARLES LYMAN SMITH.

\* Special Student.

**Institute Course.**

PORTER BELKNAP CHASE.	LESLIE ROGERS MOORE.
WARREN OLIVER EVANS.	ARTHUR LOOMIS PATRICK.
EDMUND INGERSOLL LEEDS.	ROBERT KIMBALL SHEPPARD.
EDWARD BROUGHTON WAITE.	

**Mercantile Course.**

LILLIAN BOSWORTH.	EDWARD OSCAR BURDON.
FRANCES LECODIA FARRELL.	FRANK EVERETT FULLER.
HARRIET MAY NORTON.	ERNEST CAMPBELL FISHER.
BERTHA LOUISA RAMSDELL.	PATRICK FRANCIS MURPHY.
HARRIS EDMUND BILLINGS.	GEORGE WINSLOW PUFFER.
GEORGE HENRY SAFFORD.	



## TEACHERS AND SCHOOLS.

Names.	Salary.	Beginning of Service.	Name of School.
Edward J. Goodwin . . .	\$3,000	September 1887	High
Ezra W. Sampson . . .	2,200	March . . 1870	"
S. Warren Davis . . .	2,000	January . 1881	"
Andrew J. George . . .	1,800	September 1887	"
George L. Chandler . . .	1,800	September 1887	"
Josie A. Davis . . .	1,000	September 1888	"
Marguerite W. Abbott . .	1,200	September 1888	"
Maybell P. Davis . . .	1,000	September 1881	"
Minerva E. Leland . . .	1,000	September 1887	"
Annie W. Burbank . . .	950	September 1889	"
Emma F. Johnson . . .	1,000	January . 1887	"
Frances P. Owen . . .	1,000	September 1887	"
H. Chapin Sawin . . .	1,900	October . 1871	Bigelow.
Martha M. Bakeman . . .	700	September 1870	"
Annie E. George . . .	620	April . . 1883	"
Ella M. Donkin . . .	620	February . 1886	"
Florence H. Griffin . . .	620	October . 1888	"
Emily J. Dyer . . .	620	November . 1883	"
Ellen B. Prime . . .	620	January . 1886	"
Elizabeth Ayles . . .	620	September 1883	"
Charlotte E. Sewall . . .	700	June . . 1884	Underwood.
Ada L. Donkin . . .	620	January . 1884	"
Annie L. Wood . . .	620	January . 1877	"
Josephine W. Littlefield .	620	April . . 1871	"
Nellie B. Rand . . .	700	October . 1883	Lincoln.
Mary E. Wall . . .	620	December . 1886	"
George G. Edwards . . .	1,900	March . . 1879	Eliot.
Louise N. Burbank . . .	700	September 1881	"
Anna L. Hazelton . . .	620	September 1888	"
Louise W. Clelland . . .	620	October . 1872	"
Eliza J. Lovely . . .	700	September 1880	Jackson.
Lillian E. Rogers . . .	550	September 1889	"
Martha A. Lovely . . .	620	September 1887	"
Lottie E. Stearns . . .	620	April . . 1874	"
Annie A. Early . . .	550	September 1889	"
William A. Spinney . . .	1,900	September 1879	Adams.
Abbie I. Fiske . . .	700	September 1882	"
Myra I. Billings . . .	620	February . 1889	"
Gertrude G. Tewksbury . .	620	September 1882	"
Mary A. Wellington . . .	620	April . . 1884	"
Angelia A. Smith . . .	620	September 1883	"
Herbert F. Sylvester . . .	1,900	September 1882	Claffin.
Annie C. Merritt . . .	700	November . 1886	"
J. Angeline Smith . . .	550	September 1889	"
Isabelle W. Gladwin . . .	550	September 1889	"
Ellen S. Tewksbury . . .	620	September 1884	"
Lydia A. Brierly . . .	620	September 1874	"
Levi F. Warren . . .	1,900	September 1869	Pierce.
Sarah A. Warren . . .	700	April . . 1872	"

## TEACHERS AND SCHOOLS.—(Continued.)

Names.	Salary.	Beginning of Service.	Name of School.
Nora Taft . . . . .	\$ 620	September 1887	Peirce.
Alice M. Small . . . . .	620	November . 1888	"
Eliza E. Simmons . . . . .	620	April . . 1860	"
Helen H. Rogers . . . . .	620	September 1888	"
M. Alice Warren . . . . .	700	January . 1883	Davis.
Ada P. Zeigler . . . . .	620	September 1889	"
Alice M. Wornwood . . . . .	620	September 1887	"
Sarah E. Foster . . . . .	620	May . . . 1863	"
Elizabeth F. Paddock . . . . .	700	September 1880	Franklin.
Alice M. Nelson . . . . .	620	September 1888	"
Clara H. Thompson . . . . .	620	October . 1885	"
Margaret A. Mague . . . . .	620	September 1882	"
Calista S. Wood . . . . .	700	September 1874	Barnard.
Susan E. Copeland . . . . .	620	September 1872	"
Lizzie F. Jones . . . . .	620	September 1874	"
John O. Godfrey . . . . .	1,900	April . . 1886	Williams.
Helen S. Tolman . . . . .	700	September 1883	"
Celia P. Battles . . . . .	500	September 1889	"
Kate A. Glynn . . . . .	620	November . 1889	"
Florence L. Wilson . . . . .	620	November . 1888	"
Dora A. Allen . . . . .	620	September 1883	"
Edith A. Matteson . . . . .	620	September 1887	"
Ann B. Smith . . . . .	620	September 1874	"
Luther E. Leland . . . . .	1,900	May . . . 1858	Hamilton.
Anna G. Swain . . . . .	700	September 1871	"
Ellen M. Leland . . . . .	620	February . 1870	"
Blanche E. Henshaw . . . . .	550	September 1889	"
Charles E. Hussey . . . . .	1,900	April . . . 1884	Prospect.
Martha L. Perkins . . . . .	700	May . . . 1866	"
Ella F. Crooker . . . . .	620	November . 1876	"
Lucy A. Haywood . . . . .	620	September 1883	"
Linda M. Nickelson . . . . .	620	September 1888	"
Mary P. Fanning . . . . .	620	October . 1873	"
George A. Moore . . . . .	1,900	September 1882	Hyde.
Charlotte E. Cameron . . . . .	700	March . . 1882	"
Harriet J. Brooks . . . . .	620	September 1887	"
Gertrude Blackmar . . . . .	620	December . 1882	"
N. Grace Gould . . . . .	620	February . 1885	"
Flora M. Stuart . . . . .	620	January . 1889	"
Albert L. Harwood . . . . .	1,900	September 1876	Mason.
Ellen S. Baker . . . . .	700	April . . . 1884	"
Mrs. Della E. Noyes . . . . .	620	December . 1887	"
Maria F. Wood . . . . .	620	September 1875	"
Mary Tenney . . . . .	620	September 1873	"
Georgia Bucknam . . . . .	620	June . . . 1886	"
Roberta J. Hardie . . . . .	620	September 1885	"
Mary E. Mason . . . . .	700	September 1885	Rice.
Margaret Martin . . . . .	620	September 1881	"
Adelaide L. Thompson . . . . .	620	October . 1886	"

## TEACHERS AND SCHOOLS.—(Concluded.)

Names.	Salary.	Beginning of Service.	Name of School.
Jennie P. Baker . . . .	\$ 620	September 1887	Rice.
Helen A. Davis . . . .	700	April . . 1878	Thompsonville.
Theodora A. Chase . . .	620	September 1881	Oak Hill.
<i>Special Instructors.</i>			
George H. Benyon . . . .	400	October . 1887	Military Drill.
Horace M. Walton . . . .	1,500	September 1885	Vocal Music.
Ida L. Collins . . . . .	900	September 1889	Drawing.
Alice E. Macomber . . .	320	November . 1889	"
Jennie E. Ireson . . . .	500	September 1879	Calisthenics.
Julia Grant . . . . .	450	June . . 1883	Sewing.
Ellen L. Bond . . . . .	450	June . . 1883	"
Sarah L. Dix . . . . .	225	October . 1886	"
Martha M. Dix . . . . .	480	September 1888	Special assistant.
Martin C. Laffie . . . .	300	April . . 1885	Truant officer.

## JANITORS.

## HIGH SCHOOL.

JOHN CUMMINGS, Murray Street, Newtonville.

## BIGELOW AND UNDERWOOD SCHOOLS.

CHARLES R. YOUNG, 201 Washington Street, Newton.

## LINCOLN SCHOOL.

HONORAH SWEENEY, Pearl Street, Newton.

## ELIOT AND JACKSON SCHOOLS.

MARY WELCH, West Street, Nonantum.

## ADAMS SCHOOL.

MARY A. DELANEY, West Street, Nonantum.

## CLAFLIN SCHOOL.

JOHN DORNEY, Mill Street, Newtonville.

## PEIRCE AND DAVIS SCHOOLS.

THOMAS JOHNSON, Prospect Street, West Newton.

## FRANKLIN SCHOOL.

BRIDGET COX, River Street, West Newton.

## BARNARD SCHOOL.

JOHN WOODY, Prospect Street, West Newton.

## WILLIAMS SCHOOL.

MARTIN WALSH, Melrose Street, Auburndale.

## HAMILTON SCHOOL.

JAMES H. BOIT, Grove Street, Newton Lower Falls.

## PROSPECT SCHOOL.

JOSHUA L. RANDALL, Eliot Street, Newton Upper Falls.

## HYDE SCHOOL.

JAMES C. NEWCOMB, Lincoln Street, Newton Highlands.

## MASON AND RICE SCHOOLS.

ALBERT C. MARSTON, Parkhurst Street, Newton Centre.

## THOMPSONVILLE SCHOOL.

JOHN A. HAHN, Florence Street, Newton Centre.

## OAK HILL SCHOOL.

WILLIAM E. WISWALL, Dedham Street, Oak Hill.

## SECRETARY'S REPORT.

### APPROPRIATIONS AND EXPENDITURES FOR 1890.

General appropriation, . . .	\$108,500 00	
Received from dog tax, . . .	2,911 94	
	<hr/>	\$111,411 94
Transferred to incidentals, . . .	\$2,425 00	2,425 00
		<hr/>
		\$108,986 94
Amount paid superintendent, . . .	\$2,000 00	
“ “ teachers, . . .	92,243 66	
“ “ janitors, . . .	6,925 00	
“ “ secretary, . . .	300 00	
“ “ fuel, . . .	7,508 91	
	<hr/>	
Amount expended, . . .		\$108,977 57
		<hr/>
Balance unexpended, . . .		\$9 37
		<hr/> <hr/>
School incidentals, . . .	\$9,500 00	
Transferred from general ap- propriation, . . .	2,425 00	
	<hr/>	\$11,925 00
Amount expended, . . .		11,915 10
		<hr/>
Balance unexpended, . . .		\$9 90
		<hr/> <hr/>

Evening schools, . . .	\$1,000 00	\$1,000 00
Amount expended, . . .		780 52
		<hr/>
Balance unexpended, . . .		\$219 48
		<hr/> <hr/>

**RECAPITULATION.**

## APPROPRIATIONS.

Total amount, including dog tax,	\$121,911 94
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## EXPENDITURES.

General appropriation, . . .	\$108,977 57
Incidentals, . . . . .	11,915 10
Evening schools, . . . . .	780 52
	<hr/>
Total amount expended, . . .	\$121,673 19
	<hr/>
Balance unexpended, . . . . .	\$238 75

MARY E. SHERWOOD,

*Secretary.*

JANUARY 28, 1891.

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CITY OF NEWTON.

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REPORT

OF THE

WATER BOARD

FOR THE YEAR ENDING DECEMBER 31, 1890.



NEWTON UPPER FALLS:  
FANNING PRINTING CO.  
1891.



# THE NEWTON WATER WORKS.

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## ORGANIZATION FOR 1891.

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### WATER BOARD.

HON. WILLIAM P. ELLISON, *President.*

LEVI C. WADE,

EDMUND T. WISWALL,

Alderman WM. F. HARBACH,

Councilman GEO. F. CHURCHILL.

---

J. C. WHITNEY, . . . . . *Water Registrar and Clerk of Board*

ALBERT F. NOYES, . . . . . *Engineer of Board*

H. NELSON HYDE, JR., . . . . . *Superintendent*



PAST BOARDS OF GOVERNMENT OF THE  
NEWTON WATER DEPARTMENT.

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**CONSTRUCTING COMMISSION.**

1875-1878.

Hon. R. M. PULSIFER.

Col. F. J. PARKER.

Hon. R. R. BISHOP.

**WATER COMMITTEES OF CITY COUNCIL.**

1878.

Aldermen OTIS PETTEE and E. W. WOOD.

Councilmen J. WESLEY KIMBALL, NATHAN MOSMAN and G. E. PIKE.

1879.

Aldermen G. D. ELDRIDGE and E. R. SECCOMB.

Councilmen J. WESLEY KIMBALL, NATHAN MOSMAN and EDWARD SAWYER.

1880.

Aldermen WILLIAM P. ELLISON and J. WESLEY KIMBALL.

Councilmen NATHAN MOSMAN, GEORGE E. WALES and E. W. CATE.

1881.

Aldermen WILLIAM P. ELLISON and J. WESLEY KIMBALL.

Councilmen NATHAN MOSMAN, E. W. CATE and H. A. INMAN.

1882.

Aldermen E. W. CATE and J. WESLEY KIMBALL.

Councilmen DAVID T. BUNKER, ALSON A. SMITH and FRED W. FREEMAN.

**WATER BOARDS.**

1883.

EDWARD W. CATE, FRANCIS J. PARKER, FRANCIS A. DEWSON,  
Alderman J. WESLEY KIMBALL, Councilman FRED. W. FREEMAN.

1884.

EDWARD W. CATE, FRANCIS J. PARKER, FRANCIS A. DEWSON.  
Alderman Noah W. FARLEY, Councilman ALBERT F. UPTON.

1885.

EDWARD W. CATE, FRANCIS A. DEWSON, CHARLES FRED. CREHORE.  
Alderman NOAH W. FARLEY, Councilman ALBERT F. UPTON.

1886.

EDWARD W. CATE, FRANCIS A. DEWSON, CHARLES FRED. CREHORE.  
Alderman GEORGE PETTEE, Councilman GEORGE D. DIX.

1887.

EDWARD W. CATE, FRANCIS A. DEWSON, CHARLES FRED. CREHORE.  
Alderman GEORGE PETTEE, Councilman GEORGE D. DIX.

1888.

EDWARD W. CATE, FRANCIS A. DEWSON, CHARLES FRED. CREHORE.  
Alderman GEORGE PETTEE, Councilman EDMUND T. WISWALL.

1889.

EDWARD W. CATE, FRANCIS A. DEWSON, LEVI C. WADE.  
Alderman WILLIAM F. HARBACH, Councilman EDMUND T. WISWALL.

1890.

EDWARD W. CATE\*, FRANCIS A. DEWSON†, WILLIAM P. ELLISON, LEVI C.  
WADE, EDMUND T. WISWALL.  
Alderman WILLIAM F. HARBACH, Councilman F. M. CREHORE.

\* Resigned June 30.

† Resigned December 15.

# REPORT OF THE WATER BOARD

## OF THE CITY OF NEWTON.

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WATER BOARD OFFICE, CITY HALL, }  
WEST NEWTON, January 31, 1891. }

*To His Honor the Mayor and the City Council of the  
City of Newton:*

In accordance with the requirements of the City Ordinance the Water Board herewith submits its annual report for the year ending December 31, 1890.

### **Membership of the Board.**

At the close of the year 1889 Mr. E. T. Wiswall, who had represented the Common Council during the years 1888 and 1889, retired from the Board and was succeeded by Mr. F. M. Crehore. On June 30th, 1890, Mr. Edward W. Cate, who has served as President of the Board from its organization in January, 1883, resigned, and Mr. E. T. Wiswall was appointed to fill the vacancy, Mr. Dewson being chosen President of the Board. On December 15th Mr. Dewson, at the close of eight years' service upon the Board, also resigned, Mr. W. P. Ellison being appointed to fill the vacancy.

### **Ordinary Work.**

The ordinary work of the Water Department requires no especial comment, as the detail may be found in full in the tables hereto appended. No unusual features appear, with the exception that about 1,600 feet of eight inch pipe was laid in Elliot street, without guaranty, to create a second line from the pumping station to the reservoir, as a precaution against possible accident to the twenty inch main line.

It was recommended to the City Council that in future no applicant for main pipe be required to guaranty on a sum greater than the estimated cost of a six inch pipe, and the recommendation was adopted.

### **Oak Hill District.**

A petition from inhabitants of this district for the extension of main pipe within its borders without guaranty, was referred to the Board and received careful attention.

The fact that this part of the city contributes a portion of the tax assessment far beyond any amount ever expended for its direct benefit, supplied an argument which seemed incontrovertible. A plan was devised for accomplishing this act of justice by a moderate expenditure, and the City Council was recommended to approve the laying of 19,436 feet of eight inch and six inch pipe at an estimated cost of \$29,000.

An order to that effect was subsequently passed by the Council.

### **Supply to Needham.**

A communication having been received from the water commissioners of the Town of Needham asking upon what terms the City of Newton would supply that town with water, the matter was brought to the attention of the Coun-



cil. An order enabling the City to give such supply was, upon the petition of the Mayor, passed by the Legislature, and terms which seemed to be equitable were offered to the town about the first of May, 1890. No reply was received to this communication and it is understood that other measures were adopted by the town.

### High Service and Additional Supply.

By far the most important work of the Board during the year has been the carrying out of the plans heretofore presented to the City Council, for which liberal appropriations were made during the closing months of the year 1889.

These appropriations, made in more general terms, were intended to be used as follows:

For extending a covered filtering conduit to	
Nahanton street, . . . . .	\$52,900 00
For replacing the present gallery by a similar	
conduit, . . . . .	23,546 00
For improving and reinforcing the pumping	
facilities, . . . . .	46,000 00
For a covered masonry reservoir on Waban Hill,	
to contain 2,000,000 gallons water,	51,750 00
For extension of main and all connections,	20,073 50
Total, . . . . .	<hr/> \$194,269 50

Further provision for the preservation of a sufficient supply of ground water, and for the protection of its quality from debasement, was made by the appropriation of the sum of \$45,000, for the purpose of settling with owners of land taken by the city in the Town of Needham for this purpose. The quantity of land thus taken by the city was, by estimate of the town assessors for the year 1889, 678 1-4 acres and its valuation for taxation \$17,885.

Early in 1890 the Board appointed Messrs. J. F. C. Hyde of Newton, and Geo. W. Tisdale and Jas. Mackintosh of Needham to appraise this land at its fair market value for the purposes of sale.

Subsequently Mr. Tisdale was appointed to act as agent of the Board in negotiating for settlement of these claims, and we have succeeded in coming to terms with a considerable number of the smaller owners.

The estimate of value on the part of the larger owners has probably much increased since the taking by the city, as is usual in such cases, but we hope to make equitable and satisfactory adjustments without the interposition of the courts.

Upon the land taken in the City of Newton, which lies on the northeasterly side of the river, and amounts to 91.21 acres, no appraisements or attempts at settlement have been made.

Plans and specifications for all this new work were in course of preparation during the winter months by the City Engineer, and in the month of April, after due advertisement for proposals, bids were received for the building of the new conduit and the driving of the pipe wells. Two bids only were at first received and were rejected. A second proposal brought three bids with a reduction in price from the two original competitors. The details are shown in the table appended which gives a canvass of the bids in detail, the quantities being of course not fixed, but estimated. As the smallest of these bids was far in excess of the appropriation, it was, after careful consideration, decided to undertake the work without a general contract. This, although it involved much careful supervision and increase of responsibility on the part of the Board and of the Engineer, was the plan finally adopted and carried out as we believe with entire success. A contract was made with Mr. Chas. H. Hale to supply the labor and common tools, while the pumps, boilers,

and necessary engines and machinery were obtained by purchase. Making due allowance for the value of this plant, a large portion of which may be made available to the City for other work, we have every reason to believe that its completion will be effected within the sum appropriated for the purpose, as may be seen from the report of the Engineer which is appended.

The new filtering conduit was completed so as to come into immediate use, as far as it was intended to extend it, and one-half of the old gallery has been converted into a similar conduit, leaving the other half open until experiment has determined the efficiency of the new plan. This work and the grading of the ground above the conduit constitute about all that remains to be done here during the coming season.

Bids for the construction of the covered reservoir upon Waban Hill were received May 16th from nine different parties. The lowest of these bids amounts to \$37,681 and was obtained from John H. Leavitt of Boston, to whom the contract was awarded. He subsequently, with the consent of the Board, transferred his rights to Mr. Wm. H. Mague of Newton, who had also made a bid. Mr. Mague entered upon his work with vigor and determination to complete a fully satisfactory structure, which has been carried nearly to its completion.

An increase in the capacity of the reservoir amounting to about ten per cent. was considered desirable, although the change occasioned some delay in the progress of the work, which except for this circumstance and unusual stress of weather during the latter part of the year, would have been finished within the limit of time specified in the contract, which was January 1st, 1891; an extension until June 1, 1891, has been therefore granted.

We have reason to feel entirely satisfied with the substantial and excellent quality of the contractor's work so far as it has progressed.

Proposals for building and setting up the high duty pumping engine and boilers required were also advertised for in April, bids being received from three parties. After the fullest consideration and conference with the persons representing the bids considered, a contract was made with the Geo. F. Blake Mfg. Co. for a five million gallon pump, the price for which, coming within our estimates for one of three million gallons capacity, induced us to take that of the larger capacity as insuring a more economical result in service.

This pump will be the first of its kind and capacity to be placed in actual use, but its efficiency is most fully guaranteed by a wealthy and reputable firm whose bond insures a satisfactory result. It is expected that it will be ready for use as soon as the new reservoir is in condition to be connected with it.

During the progress of all this work, and especially in the months of September, October and November, during which time weekly visits of inspection were made by the Board, it has had their constant supervision, with even more frequent visits by individual members.

The thanks of the Board are due to the City Engineer and his able assistants; also to the Superintendent and his subordinates of every grade for their willing efficiency in aiding the progress of this work, upon which many of them have at times been necessarily employed.

The Board has little doubt that the whole plan entrusted to them for execution will be completed in a satisfactory manner within the sum of the appropriations. We shall then have a supply of water sufficient for the increased growth in population for many years, and of a quality unexcelled by that of any other community.

The Board desires to express its sincere regret at the resignation of Mr. Edward W. Cate and Mr. Francis A. Dewson, also its appreciation of the ability and faithfulness

with which they have discharged the duties pertaining to their office. Both were members of the Board at its organization and are the last to retire, and the marked success which has attended this Department the past eight years is largely due to their efficient service.

Respectfully submitted,

NEWTON WATER BOARD,

By WM. P. ELLISON, *President*.



## REPORT OF THE ENGINEER TO THE WATER BOARD.

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WEST NEWTON, January 1st, 1891.

*To the Newton Water Board :*

GENTLEMEN.—In accordance with your instructions, the surveys for land taken in the Town of Needham and the City of Newton, for the protection of and from which to obtain an additional water supply, were completed, plans made and recorded.

664.64 acres of land were taken in the Town of Needham and 91.21 acres in the City of Newton.

Surveys and topographical plans were also made of the land on Waban Hill taken or purchased for reservoir purposes. There was taken from the heirs of Henry Tucker and William Lawrence 1 1-2 acres, and purchased from Mr. F. W. Sargent 422,605 square feet.

Detail plans and specifications for extending and improving the water supply, as set forth in report made to the City Council in December, 1889, were prepared and proposals received.

The plan determined upon for obtaining the additional water supply was by means of a wooden flume four feet square, inside measure, and placed in the ground between elevation 81 and 85 above city base and about six feet below the normal level of the water in the river.

The flume was extended from the up stream end of the old filter basin to Kendrick street, a distance of about 2,220 feet, and 30 feet to 300 feet from and parallel to the river within the above limits.

The general elevation of the ground along the lines of the conduit ranges from 93 to 97 feet above the city base.

Underlying the surface of the ground was first a layer of loam or muck from one to four feet deep, a layer of gravel four to fifteen feet deep, variable in quality from fine sandy or coarse loose gravel, to hard pan and in places almost pure clay.

Underlying the gravel was a layer of quick sand from ten to eighty or more feet in thickness, containing a considerable percentage of clay. Enclosed in the layer of quick sand were pockets of gravel or coarse sand, sometimes of considerable areas and thickness, and underlying it there was generally found a layer of coarse sand or gravel, running into a hard pan immediately above the bed rock or boulder. In the layers of hard pan were veins of coarse gravel.

The strata, veins or pockets of coarse sand or gravel furnished a free passage for water, with which the various materials spoken of was surcharged.

The frames of the conduit were made of spruce planks with uprights four inches thick and six inches deep, and the caps and sills four inches thick and eight inches deep, framed and securely fastened together with 8x1 inch oak trenails.

They were placed three feet apart on centres and covered with hemlock planks four inches thick, laid close, but with space enough between each to allow for the infiltration of water.

A large portion of the conduit was laid in several feet of quicksand, and, in order to insure against its infiltration into the conduit, the trench was excavated about one foot below the bottom of the conduit, and the space filled with fine screened gravel, not above one half inch in greatest



dimension. The trench was excavated five feet wider than the outside of the conduit.

The space next the conduit one foot in width was filled with screened gravel from one-half to one and a half inches in greatest dimension, and the outside space one and one-half feet wide was filled with gravel from one-eighth to one-half inch. Where there was a great depth of quick sand, a thick layer of gravel less than one-eighth inch in greatest dimension was used.

In order to obtain the water from the pockets of gravel in the quick sand, and from the strata of gravel below it, tube wells were driven and connected into the conduit.

It was found that the water was under a pressure about equal to the resistance it would meet with in passing through the compact strata of quicksand, and there is a constant flow of water from them.

The plan for improving the water supply was to extend the wooden flume or conduit, through the old filter basin, and fill it in with gravel, and build a covered masonry reservoir in which to store the surplus water pumped.

By these means the water is not exposed to the light until drawn for use, hence will not undergo a change in quality.

In accordance with the instruction of the Water Board to take charge of the work at the filter basin and conduit, proposals were received for furnishing various classes of materials to be used and contracts placed.

A contract was made with Mr. Charles H. Hale of Newton for furnishing labor and tools for the trench work and for grading, and with S. A. Piper of Newton to take charge of the carpenter work.

Mr. William P. Morse, assistant in this office, was made Resident Engineer and Mr. James E. Cahill Superintendent, and work was begun on May 14th, 1890.

The site of the conduit and for a distance of about 30

feet each side, was cleared of wood, brush and loam, and a temporary roadway constructed on the westerly side to gain access to the work by teams.

Temporary buildings were constructed as follows :

A carpenter shop, fitted up with a vertical steam boiler and engine, operating a main shaft and necessary counter-shafts and fittings, 1 swing cutting-off saw, 1 splitting saw and 1 power borer.

A pipe or machine shop, adjoining carpenter shop, and supplying with power, from the latter's main shaft, the pipe cutting and drilling machine.

An engineer's office.

A blacksmith shop complete.

A horse shed with storage shed attached.

A temporary line of 2 1-2 inch galvanized iron water pipe was connected with the main water pipe, and was run from the pumping station grounds across the river, and parallel with the line of the proposed work to Kendrick street. This pipe was used as a main to supply water for the steam boilers charging the pumps, and for use in driving wells.

A line of pipe wells were driven on each side of the conduit line, 4 1-2 feet out from centre line, and about 33 1-2 feet apart on a side.

These were of galvanized wrought iron pipes, 2 1-2 inches in diameter connected with screw couplings.

The bottom section of each well consisted of a coupling on the lower end of a perforated pipe.

The perforations were 1-4 inch in diameter reamed out to 3-8 inch outside, set equidistant apart around the circumference of the pipe, in number about 85 holes to the running foot; and varying in length from 6 inches to 3 feet, according to the thickness of the water bearing strata into which they were to be driven.

As the supply of water to the city had to be maintained when the consumption was the greatest, the first section of

wells for a distance of 500 feet along the line of the conduit were ganged together at the surface of the ground by a line of 6 inch wrought iron screw pipe laid on each bank of the trench, and connecting wells by branches, flanges and short pipes, and connecting by eight and ten inch pipes a pumping plant capable of raising 1,000,000 gallons per day.

A temporary dam was constructed on the north side of the old dam in the middle of the filter gallery and a line of 20-inch cast iron water main was laid from the section of the filter basin north of the dam, a distance of 1,092 feet to pumping plant for driven wells, leaving a branch for a 10 inch centrifugal pump.

The main was laid on the surface of the ground to a grade with joints caulked with jute packing dipped in cement.

A 10-inch centrifugal pump was fitted up at the south end of old basin, and so arranged as to pump either into the river or into the supply of the city by connection with the 20-inch main. The latter arrangement being used only at night when the water was clear or when the needs of the city demanded it.

A 10x14x16 Knowles pump was set up and connected with 32 wells ganged together, and connections made to discharge into the 20 inch mains.

This pump served a three fold purpose: 1st, furnishing the city with clear water; 2d, lowering the ground water in the ditch, preventing in a measure the inflow of the quick sand; 3d, the development of the wells connected, the continuous pumping clearing out all fine sand, and increasing the flow by the enlarged cavity or water storage area around the lower section of the wells.

The trench for conduit was excavated 12 feet wide and on an average 15 feet deep. The dimensions of the bracing, sheathing, etc., was as follows:

Sheathing 2x8 to 12 inches, 16 inches, spruce.

Rangers, 6x6 inches, 18 to 24 feet, spruce.

Braces, 6x6 inches, spruce.

The sheathing was driven by hand, the rangers were put in 4 feet apart, and braces set 8 to 10 feet apart.

Manholes were placed in the line of the conduit about 260 feet apart and at all angles. They were of the same width as the conduit and 8 feet in the clear in length. Double frames were put in the conduit at each end and four hard pine frames forming grooves, for two sets of 4 inch stop planks were put in the center of manholes and set at right angles to the conduit line.

Cast iron stop plank grooves 7 feet long were set on the frames and imbedded in the walls of the manholes which are 12 inches thick and composed of cement concrete, having 1 part American cement, 2 parts sand and 5 parts stone, brought up from the bottom of the trench to within two feet of the finished grade. The walls of the upper two feet are brick, upon which is fitted a cast iron frame and cover.

In order to provide space so that the water in the conduit can be pumped out, the bottom of the manholes are constructed from 8 to 14 inches below the level of the conduit.

While it was not intended to construct any portion of the conduit in the old filter basin until the Summer of 1891, as the work progressed, it was found that the portion between the dam and new conduit could be constructed at much less expense while the pumps were set up, and it was decided to go on with the work ; 732 feet were laid in the old filter basin.

A description of the rigging used for driving the well tubes may be of interest. The hand driving rig consisted of a tripod having legs about 20 feet long, made out of pieces of 1 1-2 inch wrought iron pipe, joined together with a bar at the top.

The bottom ends had a shoe, consisting of a broad cap. To the bar at the top was attached an iron well wheel, over which a rope was passed and used to raise a cast iron hammer weighing about 115 pounds.

In the centre of the hammer was inserted an oak plug about two inches in diameter. To the oak plug a steel guide rod 4 feet long and 7-8 inch diameter was attached. On the top of the well tube was screwed a heavy steel drive cap, with a hole in the top large enough to receive the guide rod. Three men constituted a well driving gang, two to operate the weight and one lead man to keep the pipe screwed up and watch the progress of the driving.

For driving the deep wells a heavier rigging to be operated by steam power was purchased from the American Well Works of Aurora, Ill., with which we were able to do fairly effective work.

By a more compact arrangement of the derrick more effective work can be done and I believe the rigging can be used with economy on light work where a considerable amount is to be done.

As it was, after charging to the work performed 25 per cent. of the cost of the rigging for depreciation in value, the cost per foot for the deep well work was but a little more than the cost of the shallow wells driven by hand.

Along the line of the new conduit there was driven 127 completed wells.

No of wells driven by hand power,	. . .	98
No. of wells driven by steam power,	. . .	29
No. of feet of well driven by hand power,	. . .	5,204
No. of feet of wells driven by steam power,	. . .	2,664
Maximum length of wells driven by hand power,	. . .	114 ft.
Maximum length of wells driven by steam power,	. . .	130 ft.
Minimum length of wells driven by hand power,	. . .	28 ft.
Minimum length of wells driven by steam power,	. . .	65 ft.

Average length of wells driven by hand power,	53.1 ft.
Average length of wells driven by steam power,	91.86 ft.
Cost per foot of wells driven by hand power,	\$0.83
Cost per foot of driven wells by steam power, including 25 per cent. of cost of rigging for depreciation in value,	.86
Elevation of top of wells above city base,	95.00
Elevation of bottom of deepest well below city base,	35.00
Elevation of bottom of shortest well above city base,	67.00
Average elevation of bottom of wells,	3.14

Along the line of the conduit laid in the old filter basin there was driven by hand power 47 completed wells.

Maximum length of wells driven by hand power,	49 ft.
Minimum length of wells driven by steam power,	21 1-2 ft.
No. of feet of wells driven by hand power,	1,628
Average length of wells driven by hand power,	34.64 ft
Cost per foot of wells driven by hand power,	\$0.59
Elevation of top of wells above city base,	93.00
Elevation of bottom of deepest well above city base,	44.00
Elevation of bottom of shortest well above city base,	71.50

The city base, as related to elevation or grades, is tide marsh level in Boston Harbor.

The accompanying schedule shows a comparison of the cost of the filtering conduit as actually done, with cost as per prices in bids received from contractors April 18th, and 25th, with actual quantities.



**Canvass of Bids for Filtering Conduit and Driven Wells received by the Water Board April 18 & 25, 1890.**

ITEMS.		Quantities.	Bids received April 25, 1890.										Bids Received April 18, 1890.
			MOULTON, O'MAHONEY & TRUMBULL, of Lawrence.		E. F. BRIGHAM & Co., of Cambridge.		C. P. HORTON, of Boston.		E. F. BRIGHAM & Co., of Cambridge.		C. P. HORTON, of Boston.		
a	Loam Excavation placed, . . .	900 c. y.	\$ 38	\$ 142 00	\$ 60	\$ 540 00	\$ 25	\$ 225 00	\$ 1 00	\$ 900 00	\$ 25	\$ 225 00	
aa	Loam from spoil bank placed, . .	7,200 c. y.	30	2,160 00	75	5,400 00	30	2,160 00	1 50	10,800 00	30	2,160 00	
b	Selected material placed, . . .	4,000 c. y.	1 25	5,000 00	1 00	4,000 00	75	3,000 00	75	3,000 00	75	3,000 00	
bb	Selected material obtained outside,	550 c. y.	1 50	825 00	1 50	825 00	1 00	550 00	1 50	825 00	1 00	550 00	
c	Rock Excavation, . . .	50 c. y.	2 50	125 00	6 00	300 00	8 00	400 00	5 00	254 00	8 00	400 00	
d	Wooden Conduit, . . .	2,220 l. ft.	25 80	57,276 00	31 00	68,820 00	18 50	41,070 00	34 00	75,480 00	18 50	41,070 00	
e	Manholes, brick or concrete, . .	8	165 00	1,320 00	125 00	1,000 00	75 00	600 00	125 00	1,000 00	75	600 00	
f	Driven Wells and connections, . .	7,800 l. ft.	4 00	31,200 00	2 75	21,450 00	1 00	7,800 00	2 50	19,500 00	1 15	8,970 00	
g	2½ in. Chapman Valves with gate-boxes and connections, . . .	130	12 00	1,560 00	10 00	1,300 00	7 50	975 00	10 00	1,300 00	5 50	715 00	
h	Laying 20 in. iron pipe and removing the same, . . .	2,000 l. ft.	40	800 00	1 50	3,000 00	40	800 00	1 50	300 00	1 00	2,000 00	
Total Bid, . . .				\$100,805 00		\$109,635 00		\$57,580 00		\$116,025 00		\$59,690 00	





**OLD BASIN.—Table showing cost of Conduit in Old Basin, as compared with prices in Bids received by the Water Board.**

ITEMS.		Quantities.		COST OF WORK AS DONE BY THE CITY.		ESTIMATED COST OF THE WORK, AS PER PRICES IN BIDS RECEIVED BY THE WATER BOARD.											
						Bids received April 25, 1890.						Bids received April 18, 1890.					
						Moulton O'Mahoney & Trumbull, of Lawrence.		E. F. Brigham & Co., of Cambridge.		C. P. Horton, of Boston.		E. F. Brigham & Co., of Cambridge.		C. P. Horton, of Boston.			
a	Loam Excavation . .	None.		\$ 1 09	\$1,717 97	\$ 1 25	\$1,922 50	\$ 1 00	\$1,538 00	\$ 75	\$1,153 50	\$ 75	\$1,153 50	\$ 75	\$1,153 50		
b	Selected Material . .	1,538 c. y.															
c	Rock Excavation . .	None.															
d	Conduit (exc. pumping)	732 ft.	7 52			25 28	18,504 96	31 00	22,662 00	18 50	13,542 00	34 00	24,888 00	18 50	13,542 00		
e	Manholes (set. iron) .	3	105 61			165 00	495 00	125 00	375 00	75 00	225 00	125 00	375 00	75 00	225 00		
f	Pipe Wells (by hand)	1,628 ft.	59			4 00	6,512 00	2 75	4,477 00	1 00	1,628 00	2 50	4,070 00	1 15	1,872 20		
g	Chapman Valves, etc.	47	7 97			12 00	564 00	10 00	470 00	7 50	352 50	10 00	470 00	5 50	258 50		
h	Laying 20 in. pipe .	None.															
Total of Contract . . . . .					\$8,873 61		\$27,998 00		\$29,552 00		\$16,901 00		\$30,956 50		\$17,031 20		
Iron Work, to be furnished . . .					219 45		219 45		219 45		219 45		219 45		219 45		
Engineering and Office expenses .					250 00		250 00		250 00		250 00		250 00		250 00		
Total Cost of Conduit in Old Basin					\$9,343 06		\$28,467 45		\$30,021 45		\$17,370 45		\$31,425 95		\$17,520 65		

**Table showing cost of whole Filtering Conduit compared with prices in Bids received by the Water Board.**

ITEMS.	Quantities.	COST OF THE WORK AS DONE BY THE CITY.	ESTIMATED COST OF THE WORK AS PER PRICES IN BIDS RECEIVED BY THE WATER BOARD.											
			Bids received April 25, 1890.						Bids received April 18, 1890.					
			Moulton, O'Mahoney & Trumbull, of Lawrence.		E. F. Brigham & Co., of Cambridge.		C. P. Horton, of Boston.		E. F. Brigham & Co., of Cambridge.		C. P. Horton, of Boston.			
			\$	38	\$	60	\$	25	\$	1 00	\$	25	\$	
a Loam Excavation .	3,150 c. y.	\$1,959 32	\$	1 25	\$1,197 00	1 00	\$1,890 00	75	\$787 50	\$3,150 00	75	5 584 50	5 584 50	
b Selected Material .	7,446 c. y.	8,324 42	2 50	180 00	9,307 50	6 00	7,446 00	8 00	5,584 50	5 00	360 00	8 00	576 00	
c Rock Excavation .	72 c. y.	68 99	25 28	74,626 56	31 00	91,512 00	18 50	54,612 00	34 00	100,368 00	18 50	54,612 00	54,612 00	
d Conduit (exc. pump.)	2,952 ft.	42,533 31	105 00	1,650 00	125 00	1,250 00	75 00	750 00	125 00	1,250 00	75 00	750 00	750 00	
e Manholes (set. iron) (driven by hand)	10 6,832 ft.	1,054 47	4 00	37,984 00	2 75	26,114 00	1 00	9,496 00	2 50	23,740 00	1 15	10,920 40	10,920 40	
f Pipe Wells, connect. (driven by steam)	9,496 ft.	5,281 82	12 00	1,944 00	10 00	1,620 00	7 50	1,215 00	10 00	1,020 00	5 50	891 00	891 00	
g Chapman Valves, etc.	162	2,604 ft.	40	436 80	1 50	1,628 00	40	5,436 80	1 50	1,638 00	1 00	1,092 00	1,092 00	
h Laying 20 in. pipe .	1,092 ft.	458 00												
Total of Contract . . . . .		\$63,302 58		\$127,325 86		\$131,902 00		\$73,437 80		\$137,710 50		\$75,213 40	\$75,213 40	
Iron Work to be furnished by City		731 50		731 50		731 50		731 50		731 50		731 50	731 50	
Engineering and office expenses		2,996 38		2,996 38		2,996 38		2,996 38		2,996 38		2,996 38	2,996 38	
TOTAL COST of the Work .		\$67,030 46		\$130,053 74		\$135,629 88		\$77,185 68		\$141,438 38		\$78,941 28	\$78,941 28	

### **New Pumping Engine and Boilers.**

On June 6th, 1890, a contract for a High Duty Pumping Engine and two boilers was signed with The Blake Manufacturing Company of Boston.

The pumping engine is to have a capacity of five million gallons of water per 24 hours delivered at the New Reservoir on Waban Hill with a speed not over 250 ft. per minute for the plunger.

To be a direct acting fly wheel, cross compound engine steam cylinder 20x24 inches, with plungers 13 1-2 inches in diameter, stroke 40 inch, Corliss type of valve gear, with independent eccentric on the low pressure inlet and exhaust valves. Automatic governor on the high pressure inlet valve gear only.

The contract price for the pumping engine set up complete is \$17,431.

The two boilers to be of the Belpaire locomotive fire box type, each one 84 inches in diameter, 30 ft. long, and capable of furnishing sufficient steam at 150 pounds pressure to operate the engine at its fullest capacity.

Contract price for the two boilers all set up in the boiler house, \$15,790.

This includes all necessary feed pumps, furniture and fittings.

The city is to put in the foundation for the engines and boilers at its own expense.

The engine and boilers are to be tested separately. The guaranteed duty of the engine is 115,000,000 foot pound. The boilers are to evaporate not less than 11 pounds of water per pound of fuel, exclusive of the effect of a feed water heater.

Canvass of Bids for High Duty Pumping Engines and Boilers received by the Water Board  
April 25, 1890.

NAME OF BIDDER.	One 5 million gallon High Duty Pumping Engine, or	One 3 million gallon High Duty Pumping Engine.	Two Belpaire Loco- motive Type Fire- Box Boilers, or	Two Underfired, Re- turn Flue Boilers, set in Brickwork.	Two Complete Com- bustion, Locomotive Type Boilers, or	Two Complete Com- bustion, Regular Pattern Boilers.	Total Amount of each Bid.	Pumping capacity Guaranteed.
The Geo. F. Blake Mfg. Co., of Boston, Mass.  Duty 115 & 112 mill.	\$17,431 00	—	\$14,315 00	\$8,583 00	—	—	\$31,746 00	5 million gal.
	17,431 00	—	—	—	—	—	26,014 00	5 “
	17,431 00	—	—	—	\$11,665 00	—	29,096 00	5 “
	—	—	—	—	—	\$10,565 00	27,996 00	5 “
	—	\$14,250 00	9,215 00	—	—	—	23,465 00	3 “
	—	14,250 00	—	4,814 00	—	—	19,064 00	3 “
	—	14,250 00	—	—	7,765 00	—	22,015 00	3 “
	—	14,250 00	—	—	—	7,165 00	21,415 00	3 “
Arthur J. L. Loretz, of Brooklyn, N. Y.  Duty 110 & 105.	21,000 00	15,500 00	—	7,500 00	—	—	Total { 25,500 00	5 million gal.
	20,000 00	—	—	—	—	—	28,500 00	3 “
	18,000 00	13,500 00	—	—	—	—	Total { 21,000 00	3 “
	—	—	—	—	—	—	23,000 00	3 “
Henry R. Worthington of New York. Duty 105.	29,750 00	—	24,700 00	—	—	—	54,450 00	5 million gal.
	—	21,800 00	19,300 00	—	—	—	41,100 00	3 “

### Covered Reservoir.

The reservoir is substantially a rectangular chamber 125 feet wide by 172 1-4 ft. long, and 15 ft., 6 in. deep, with rubble masonry walls, and an arched brick covering. At the northwest corner is located the gate chamber, which is circular 30 ft. inside diameter and cuts off this corner of the reservoir. The ultimate design is to have this gate-chamber form the center of a four sectioned reservoir, of which the reservoir now building would be the south-east quarter. All the water mains for inlet and outlet are brought to this central chamber, in which are located all the gates for regulating the flow of the water into or out of any one of each of the four sections, and have an ultimate storage capacity of about 10,000,000 gallons. This chamber is built with extra thick walls so as to form the foundation for the high service stand-pipe, recommended in the report of the engineers in December, 1889 to be built later, for increasing the efficiency of the fire protection in the upper levels of the city.

The location of the reservoir on the hill top was selected in such a way that all the foundations and the bottom of the reservoir should every where be on solid ground. The bottom of the reservoir being about grade 305, it is in all cases inside of the 305 contour of the hill.

The walls of the reservoir are founded on hard pan at grade 302, being 7 feet, 2 inches, to 7 feet, 10 inches thick for a height of four feet, hence narrowing up to a thickness of from 2 feet, 6 inches, to 5 feet, 2 inches on top. The walls on the north and west sides which will eventually form one side of the other sections of the large reservoir, have been built with a double face and a batter of 1 in 12 on each side. The east and south walls have been faced and battered on the inside only, and stepped off on the outside. The circular walls of the gate-chamber have been carried up double faced and plumb on both sides 7 feet, 6 inches thick.

All these walls are built of Roxbury pudding stone of the local quarries, laid in American cement mortar.

The covering of the reservoir is formed by a series of arches of four inches brickwork covered with four inches of Portland concrete.

These arches are supported on lines of brick piers connected by brick lintels, the outer edge bearing on the end walls. The brick piers are 20x20 inches square, set ten feet away, and are started on masonry foundations three feet square, all laid in American cement mortar. The covering arches are laid in Portland cement mortar. All the arches have ten feet span and ten inch rise.

All the walls are to receive a coating of Portland cement mortar one-half inch thick, and finished off smooth.

The high water line which is at grade 320, comes to the top of the lintel arches.

At the centre of each line of arches is located a 24 inch cast iron ventilator with a solid cover, and a series of slotted vertical openings to admit a free circulation of air without admitting direct light.

The bottom of the reservoir, which is a compact hard pan is to be finished off with four inches of cement concrete rounded up to the walls on all sides and graded down to the waste outlet.

The sides of the reservoir are to be protected by gravel banks well packed down, and graded off on a slope of 2 to 1 on the east and south and 1 1-2 to 1 on the north and west (which banks will have to be removed when the other sections are built). The slopes of the banks are all loamed and sodded, and the tops are to be finished off with a gravel walk six feet wide all around the reservoir.

The top of the reservoir above the concrete is to receive two feet of loam and to be grassed over. A granite edge stone is to be set all around the edge of the loam to divide it from the gravel walk. Tile drains are to be run over the



haunches of the arches to carry off any extra rain that may percolate through the loam above.

In this manner it is expected that the water in the reservoir will be kept at a pretty even temperature throughout the year. It will not freeze in winter, nor will it be heated in summer; and the light being kept from it the growths usual to ground water exposed to the light and air in Summer, will be wholly prevented.

As already stated the supply to the reservoir is through the gate-chamber. For this purpose a 24 inch cast iron water main has laid from the gate-chamber to beyond the line where the foot of the bank of the future sections of the reservoir on the west side will extend. This will be prolonged in the spring by a 20 inch main to connect with the present main on Ward street. If at any future time it should become necessary to increase this to 24 inches, it will thus not be necessary to interfere with that portion embraced within the lines of the reservoir.

At the gate-chamber the force main is carried up some five feet by means of a Y branch and terminates in the bottom of a steel distributing tank 12 feet high, and 7 feet, 6 inches in diameter, enamelled inside, situated in the centre of the chamber, on a brick and masonry foundation. The water is allowed to rise in this tank to near high-water line, and then flows into the reservoir through a 24 inch gate, and a line of pipe carried down to and along the bottom of the reservoir to its middle, where it flows out through a vertical 1-4 turn globe special.

When the reservoir is full to the high-water mark (320) it will flow over a weir near the top of the steel distributing tank, down through a 24 inch waste pipe, which has been laid below the force-main, in the same trench, and bedded in concrete, to prevent all settlement of the main. This waste pipe is to be continued by a 20 inch pipe, and connected to the present reservoir, so that the surplus water if any is

pumped may not be lost. There will also be a branch to this waste pipe of smaller size to carry off any of the washings of the reservoir into the nearest drain.

The water is taken from this reservoir near the bottom by the gate-chamber, through a line of 24 inch pipe and globe specials, and a check-valve, back into the force-main at the Y branch before mentioned. A 24 inch geared gate controls this flow from the reservoir.

All this piping is laid symmetrically on either side of the gate-chamber, and carried through the walls, so that when the future sections are built, they may be directly connected with the system, by simply inserting the necessary gates. One single check-valve controls the whole. Any sections will then be so that it can connect with the distributing or force-main, or with one of the other sections.

There is also a 12 inch connection from the reservoir into the 24 inch waste pipe, to be used in cleaning out the reservoir, after it has been drawn down through the distributing gate.

This is controlled by a 12 inch gate in the gate-chamber, and the connections are duplicated for the other sections.

The bottom of the gate-chamber is to be concreted, and a separate 6 inch drain pipe has been provided to carry off any leakage that may occur, or water from washings.

Access will be had to the gate-chamber at the surface of the ground through a four-foot doorway and a flight of steps over the location of the force-main. The general embankment around the reservoir will be continued around the gate-chamber, and cut off by wing-walls either side of the doorway, which will be finished off in granite.

A flight of granite steps on the south side of the doorway will give access to the walk on the top of the bank. A similar, but longer flight, will give access to the walk on the east side of the reservoir.

The top of the gate-chamber will be floored over, por-



tions of the flooring being set with glass for the admission of light. It is also intended to have the central portion of the floor over the tank made so as to open and allow a view of the water rising up from the main. Probably a structure some 25 or 30 feet high will be erected over the chamber that can be used as a point of observation, and eventually form the base of the stand-pipe tower.

The top of the reservoir being at grade 324, a very extended and fine view of the surrounding country and the harbor can already be had from the top of the banks.

When the time comes to put in the stand-pipe it is the intention that all the gates, etc., to control it shall also be located in this chamber.

The contractor for building the reservoir, Mr. William H. Mague of West Newton, began work June 3d, 1890, which has been pushed rapidly forward, but the early frosts prevented the completion of the work by January 1st, 1891, and an extension of time to June 1st, 1891, was granted.

The work has been well done, and the contract so far has been faithfully executed.

Respectfully submitted,

ALBERT F. NOYES, *City Engineer.*

## Details of Extensions made in 1890.

STREET.	Ward.	LOCATION.	LENGTH OF EACH SIZE IN FEET.						Gates.	Hydrants.	Cubic Yards
			24 in.	12 in.	10 in.	8 in.	6 in.	4 in.			
Allen Place . . . . .	3	From Washington, north . .	..	..	..	..	195	..	1	..	..
Allison . . . . .	1	From California, north . .	..	..	..	..	404	..	1	..	..
Auburndale Avenue . . . .	4	Extended west . . . . .	..	..	..	..	793	..	..	1	..
Beecher Place . . . . .	6	Extended east . . . . .	..	..	..	..	..	91	..	..	12
Billings Park . . . . .	7	From Church, south . . . .	..	..	..	..	..	185	..	..	..
Boylston . . . . .	6	Extended west . . . . .	..	..	..	..	106	..	..	..	34
California . . . . .	1	Extended east . . . . .	..	..	..	..	410	..	..	1	..
Carlton Road . . . . .	5	From Beacon, south . . . .	..	..	884	27	507	..	2	2	..
Chestnut Hill Road . . . .	6	Extended north . . . . .	..	..	..	..	239	..	..	1	..
Chester . . . . .	5	From Forest, south . . . .	..	..	..	..	291	..	1	1	..
Clinton . . . . .	2	.. . . .	..	..	..	..	172	..	..	..	..
Court . . . . .	2	From Washington, north . .	..	..	..	..	255	2	1	1	..
Crafts . . . . .	2	Extended west . . . . .	..	..	..	..	174	..	..	..	..
Cushing . . . . .	6	From Hyde, east . . . . .	..	..	..	..	358	..	1	..	15
Cypress . . . . .	6	Extended south . . . . .	..	..	..	..	1,303	..	..	2	26
Dickerman Road . . . . .	5	From Lincoln, north . . . .	..	..	..	..	245	..	1	..	..
Edinboro . . . . .	2	Extended north . . . . .	..	..	..	..	37	..	..	..	..
Elliot . . . . .	5	From Boylston, south . . . .	..	..	..	1,602	..	..	1	1	..
Essex Road, off . . . . .	6	From Essex Road, east . . .	..	..	..	1,044	..	..	1	1	4
Fairoaks Avenue . . . . .	2	From California, east . . . .	..	..	..	..	526	..	1	1	..
Fairview . . . . .	7	Extended north . . . . .	..	..	..	..	98	..	..	..	..
Farwell . . . . .	2	Extended north and west . .	..	..	..	..	1,057	..	..	1	..
Gardner . . . . .	1	.. . . .	..	..	..	..	44	..	..	..	..
Harrison . . . . .	5	From Lincoln, north . . . .	..	..	..	368	..	..	1	1	..
Hunnewell Avenue . . . . .	7	To connect . . . . .	..	..	..	..	156	..	..	..	..
Hyde . . . . .	5	Extended west . . . . .	..	..	..	..	206	..	..	1	17

Jenison	2	To connect	..	..	224	..	..	..	..	..
Jewett	1	From Pearl, north	..	..	264	..	1	1	..	..
Lake Avenue	6		..	..	55	..	1	1	..	..
Lincoln, off	5	From Lincoln, south	..	..	338	..	1	..	..	..
Lincoln Court	2		..	..	..	36	..	..	..	..
Marshall	6	From Grant Avenue, west	..	..	488	..	1	1	41	..
Minot Place	2	From Walnut, west	..	..	202	..	1	1	..	..
Newtonville Avenue	2	Extended east	..	..	62	..	1	1	..	..
Oak, off	5	From Oak, west	..	..	264	..	1	..	4	..
Pleasant	3	From Cherry, east	..	..	666	..	1	1	..	..
Prince	3	Extended south	..	..	15	..	1	1	..	..
Pumping Station	5		..	..	..	..	1	..	..	..
Walnut	2	To connect	779	..	24	..	1	..	..	..
Washington, off	2	From Washington, north	..	..	..	297	1	..	..	..
Washington, off	4	From Washington, east	..	..	218	684	1	2	..	..
Watertown	2	From Edinboro, west	..	..	385	..	1	1	..	..
Webster	3	From Crescent, west	..	..	111	..	1	..	..	..
Winchester	5	From Needham, south	..	..	..	..	1	1	..	..
Windsor	4	Extended west	..	..	..	..	1	1	..	..
Totals			28	779	10,904	1,304	24	25	164	..

Total length of Main Pipe laid during year 1890, 17,984 feet.

## Description of Main Pipe Laid to December 31, 1890.

DATE OF LAYING.	LENGTH OF DIFFERENT SIZES IN FEET.								TOTAL.
	24 in.	20 in.	16 in.	12 in.	10 in.	8 in.	6 in.	4 in.	
Laid previous to January, 1878 .	761	18,012	2,457	58,932	..	53,321	116,815	23,235	273,533
Laid during 1878 . . . . .	..	..	..	..	..	180	8,391	2,085	10,656
Laid during 1879 . . . . .	..	..	..	1,083	..	947	13,157	3,122	18,300
Laid during 1880 . . . . .	..	..	..	754	..	1,484	9,728	4,053	16,019
Laid during 1881 . . . . .	..	..	..	..	..	484	7,449	2,483	10,416
Laid during 1882 . . . . .	..	..	..	..	..	1,211	10,416	2,605	14,232
Laid during 1883 . . . . .	..	..	..	1,242	..	2,656	7,941	2,304	14,143
Laid during 1884 . . . . .	..	..	..	242	..	..	8,951	983	10,176
Laid during 1885 . . . . .	..	..	..	850	..	2,082	11,047	3,626	17,605
Laid during 1886 . . . . .	..	..	..	1,187	..	4,213	13,938	2,826	22,164
Laid during 1887 . . . . .	..	..	..	2,228	..	6,110	20,927	2,787	32,052
Laid during 1888 . . . . .	..	..	..	754	..	5,023	12,119	1,222	19,118
Laid during 1889 . . . . .	..	..	..	2,194	..	5,122	9,920	550	17,786
Laid during 1890 . . . . .	28	..	..	779	884	4,025	10,904	1,304	17,984
Totals . . . . .	789	18,012	2,457	70,245	884	86,918	261,703	53,185	494,193

## Details of Services Laid in 1890.

MONTH.	IRON PIPE.										LEAD PIPE.										TOTAL.					
	2-in.		1½-in.		1¼-in.		1-in.		¾-in.		½-in.		¼-in.		1/8-in.		Length in feet.	No.								
	No.	Length in feet.	No.	Length in feet.	No.	Length in feet.	No.	Length in feet.	No.	Length in feet.	No.	Length in feet.	No.	Length in feet.	No.	Length in feet.										
January . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	294							
February . .	..	..	..	..	..	..	4	93	1	14	..	..	..	..	..	..	..	2	200	..	13	7	320			
March . .	..	..	..	..	..	..	4	244	..	..	..	..	..	..	..	..	..	3	121	..	..	7	365			
April . .	1	176	1	..	..	..	12	428	..	..	..	..	1	57	16	751	1	15	32	1,504	..	..	..	..		
May . .	4	92	1	..	1	40	6	199	..	..	..	1	138	1	30	18	641	1	14	33	1,431	..	..	..	..	
June . .	1	33	..	..	..	..	4	131	..	..	..	..	..	2	89	16	803	..	..	23	1,056	..	..	..	..	
July . .	..	..	2	..	..	..	10	276	..	..	..	..	..	..	..	8	451	1	5	21	894	..	..	..	..	
August . .	..	..	..	..	..	..	5	187	..	..	..	..	..	2	101	9	567	2	92	18	947	..	..	..	..	
September .	..	..	..	..	..	..	12	384	..	..	..	7	..	2	176	16	925	1	36	31	1,528	..	..	..	..	
October . .	..	..	..	..	..	..	3	98	..	..	1	392	..	..	1	106	8	382	..	..	13	978	..	..	..	..
November .	..	..	1	..	1	360	4	244	..	..	..	1	62	2	63	17	759	1	12	27	1,571	..	..	..	..	
December .	..	..	..	..	..	..	9	321	..	..	..	..	..	1	189	6	373	1	24	17	907	..	..	..	..	
Totals .	6	301	5	587	2	400	73	2,605	1	14	1	392	2	207	12	811	127	6,267	8	211	237	11,795	..	..	..	..

Total iron, 3,907 feet. Total lead, 7,888 feet. 237 new services, 11,795 feet, 36 renewals, 2,139 feet.

**Supply Pipe Laid in 1890.**

STREET.	Ward.	LOCATION.	LENGTH IN FEET.		
			2-in.	1½-in.	1¼-in.
Gardner . .	1	Jewett, west . .	..	37.10	49.00
Off Winchester	5	Winchester, south	123.90	..	..
Off Washington	4	Hospital Grounds	173.80	..	..
Total . .			297.70	37.10	49.00

**Number and Length of Services Laid to Date.**

DATE OF LAYING.	Number.	Length in feet.
Laid to January, 1878 . . . .	1,497	104,065
Laid during 1878 . . . .	188	15,449
Laid during 1879 . . . .	232	13,670
Laid during 1880 . . . .	228	18,039
Laid during 1881 . . . .	267	14,675
Laid during 1882 . . . .	169	10,904
Laid during 1883 . . . .	159	11,709
Laid during 1884 . . . .	179	12,113
Laid during 1885 . . . .	215	12,367
Laid during 1886 . . . .	298	14,748
Laid during 1887 . . . .	335	16,457
Laid during 1888 . . . .	211	10,378
Laid during 1889 . . . .	225	12,892
Laid during 1890 . . . .	237	11,795
Total . . . .	4,440	279,261

**Meters Set.**

The following meters were set during 1890 : Hersey, 299 ; Thomson, 11 ; Union Rotary, 1. There are now in use throughout the city 2995 meters, 1949 of which are owned and rented to the water-takers by the department. The meters now in use are classified as follows :

**Classification of Meters in Use.**

PATTERN.	SIZES.								TOTAL.
	$\frac{1}{2}$ -in.	$\frac{3}{8}$ -in.	$\frac{3}{4}$ -in.	1 in.	1 $\frac{1}{2}$ -in.	2-in.	3-in.	4-in.	
Crown . . . . .	1,991	..	24	28	2	11	2	..	2,058
Hersey . . . . .	..	347	..	3	..	1	..	1	352
Worthington . . .	..	297	6	3	..	..	1	..	307
Union Piston . . .	..	183	17	1	..	..	..	..	201
Union Rotary . .	..	53	2	4	..	1	..	..	60
Thomson . . . . .	..	11	..	..	..	..	..	..	11
Spooner . . . . .	..	1	..	..	..	..	..	..	1
Desper . . . . .	..	2	..	..	..	..	..	..	2
Frost . . . . .	..	1	..	..	..	..	..	..	1
Indicators . . . .	..	..	..	..	..	..	..	..	2
Total . . . . .	1,991	895	49	39	2	13	3	1	2,995

**Water Pumped and Consumed.**

There were pumped during 1890, 359,487,217 gallons of water, about 44,000,000 gallons in excess of the quantity pumped in 1889.

The consumption for the year averaged 985,396 gallons per day, ranging from 587,784 gallons, the minimum, Jan. 19th, to 1,825,623 gallons, the maximum consumption, July 16th. The accompanying tables show the consumption by months since 1878.

Daily Average Consumption of Water from 1878 to 1890, inclusive.

MONTH.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
January . . .	286,234	319,645	386,524	406,212	445,257	526,943	449,079	532,659	523,558	619,418	645,101	655,433	837,688
February . . .	274,792	300,275	341,920	397,346	470,841	481,437	444,011	563,741	531,434	592,530	655,412	724,710	878,191
March . . .	227,484	300,048	325,996	354,168	541,149	503,804	473,193	466,218	570,673	580,902	617,863	719,927	817,567
April . . .	221,508	297,850	381,002	392,617	477,540	494,281	451,722	543,734	575,883	590,590	635,638	770,102	927,997
May . . .	294,278	388,671	514,382	466,234	510,651	563,500	502,412	566,650	645,267	763,109	700,816	900,353	980,583
June . . .	369,844	465,924	719,348	475,573	646,752	719,838	679,588	835,919	840,520	896,608	871,010	914,689	1,091,467
July . . .	557,446	488,733	515,623	520,529	764,985	818,209	626,404	870,227	1,052,536	905,024	924,756	878,551	1,348,912
August . . .	386,916	502,418	540,468	510,214	944,486	1,042,608	561,032	690,262	742,347	769,210	811,153	831,641	1,117,275
September . . .	374,517	387,366	530,826	550,974	712,994	882,348	663,817	673,137	716,465	760,308	688,252	867,418	1,054,504
October . . .	343,431	370,238	419,474	467,155	601,595	511,039	552,219	580,189	678,351	692,127	641,758	873,851	962,662
November . . .	304,208	361,446	387,683	440,689	520,945	482,570	470,116	529,666	611,504	653,907	612,405	1,081,677	925,517
December . . .	297,890	336,777	364,196	426,752	501,669	460,994	497,075	532,023	592,510	620,389	634,414	1,076,158	870,981
Daily average .	328,212	374,949	452,032	450,705	594,930	624,381	532,804	614,908	675,298	733,702	703,491	853,435	985,396
Maximum . .	700,000	650,000	858,000	842,000	1,370,000	1,384,000	962,000	1,387,000	1,997,000	1,400,000	1,419,000	1,412,000	1,825,623



**Receipts for the Year 1890.**

Annual rates . . . . .	\$20,232 74
Meter rates, . . . . .	50,932 37
Service and meter account, . . . . .	4,161 46
Construction account, . . . . .	1,236 69
Meter rent, . . . . .	3,636 49
	<hr/>
	\$80,199 75

**Expenditures for the Year 1890.**

## MAINTENANCE ACCOUNT.

Amount of appropriation, . . . . .	\$14,800 00
Expense of registrar's office, including salary of registrar, inspector, travelling and miscellaneous expenses, . . . . .	\$2,994 19
Expense of superintendent's office, including salary of superintendent, pipe yard and miscellaneous expenses, . . . . .	1,930 83
Expense of pumping station, including salary of engineer and fireman, fuel, repairs, etc., . . . . .	6,776 85
Expense of maintaining reservoir, . . . . .	701 15
mains, . . . . .	302 15
hydrants, . . . . .	348 62
services, . . . . .	184 66
filter basin, . . . . .	769 62
stand pipes, . . . . .	230 29
city teams, . . . . .	362 50
	<hr/>
<i>Amounts carried forward,</i>	\$14,600 86
	<hr/>
	\$14,800 00



<i>Amounts brought forward,</i>	\$14,600 86	\$14,800 00
Expense of maintaining drinking posts, . . . .	47 73	
Expense of maintaining watering troughs, . . . .	75 10	
Tools, . . . . .	55 67	
Pumping station dwelling, .	15 00	
	<hr/>	14,794 36
Balance, unexpended,		<hr/> \$5 64

## SERVICE AND METER ACCOUNT.

Amount of appropriation, . .		\$3,500 00
Expended for new services, . .	\$2,559 06	
Expended for maintaining service, . . . . .	236 32	
maintaining meters, . . . .	482 09	
maintaining city teams, . . .	188 32	
sundries, . . . . .	32 65	
	<hr/>	3,498 42
Balance unexpended,		<hr/> \$1 58

## REBATE ACCOUNT.

Amount of appropriation, . .		\$500 00
Expended in rebates of water rates, . . . . .	\$56 45	
meter rates, . . . . .	319 33	
service and meter account, . .	7 46	
meter rental, . . . . .	42 38	
	<hr/>	425 62
Balance unexpended,		<hr/> \$74 38

## CONSTRUCTION ACCOUNT.

## DR.

Expended for mains, . . . . .	\$31,661 30
hydrants, . . . . .	2,752 96
services, . . . . .	6,268 32
stand-pipes, . . . . .	111 93
water-gates, . . . . .	592 11
tools and repairs, . . . . .	703 43
gate-boxes, . . . . .	999 46
meters, new, . . . . .	5,160 95
meter maintenance, . . . . .	271 71
new engine, . . . . .	458 42
new engine foundation, . . . . .	643 02
blow offs, . . . . .	40 00
city teams, . . . . .	733 12
engine fittings, . . . . .	9 15
additional supply and covering	
old basin, . . . . .	79,613 34
land for additional supply, . . . . .	7,773 12
land for reservoir, . . . . .	42,265 00
new reservoir, . . . . .	43,063 30
	<hr/>
	\$223,120 64

## CR.

By receipts during the year, . . . . .	1,236 69
	<hr/>
Net expenditure during 1890, . . . . .	\$221,883 95
Net expenditure to Dec. 31, 1889, . . . . .	1,218,647 98
	<hr/>
Net expenditure to Dec. 31, 1890, . . . . .	\$1,440,531 93

## REPORT OF WATER BOARD.

Comparative Statement of Receipts and Expenditures from 1878 to 1890, inclusive.

YEAR.	EXPENDITURES.				RECEIPTS.				DEFICIT.
	Interest.	Maintenance.	Services and Meters.	Total.	WATER RATES.		Services and Meters.	Total.	
					From City.	Other Sources.			
1878 . . .	\$44,800 00	\$9,777 69	\$6,997 45	\$61,575 14	\$5,896 74	\$17,598 33	\$5,280 55	\$25,775 62	\$35,799 52
1879 . . .	45,500 00	8,841 20	4,860 57	59,201 77	6,132 50	21,023 02	3,138 68	30,294 20	28,907 57
1880 . . .	47,750 00	9,223 70	4,212 24	61,185 94	8,919 00	24,815 58	6,192 40	39,926 98	21,258 96
1881 . . .	48,900 00	12,682 49	4,951 20	66,533 69	8,533 18	26,953 10	5,206 48	40,692 76	25,840 93
1882 . . .	49,600 00	13,811 62	5,590 63	69,002 25	8,729 01	32,703 38	5,454 59	47,886 98	21,115 27
1883 . . .	50,900 00	16,266 01	5,498 65	72,664 66	12,851 22	36,476 73	5,727 50	55,055 45	17,609 21
1884 . . .	52,500 00	13,351 94	5,584 97	71,436 91	12,127 56	37,641 45	5,879 38	55,648 39	15,788 52
1885 . . .	53,100 00	12,873 49	6,471 25	72,444 74	14,278 89	39,567 77	5,471 52	59,318 18	13,126 56
1886 . . .	54,380 00	12,986 51	5,998 86	73,365 37	11,177 00	43,183 88	6,311 50	60,672 38	12,692 99
1887 . . .	55,740 00	13,951 64	3,998 79	74,053 48	14,301 29	42,947 76	5,194 64	62,443 69	11,609 79
1888 . . .	59,600 00	13,938 33	3,499 22	77,296 11	15,341 26	48,692 21	3,747 05	67,780 52	9,515 59
1889 . . .	61,340 00	15,420 78	3,532 00	80,700 79	15,310 96	51,296 78	5,871 20	72,478 94	8,221 85
1890 . . .	66,840 00	14,794 36	3,498 42	*85,558 40	16,225 09	54,940 02	4,161 46	75,326 57	10,231 83

\*Including \$425.62.

## SUMMARY OF STATISTICS.

### REPORT OF 1890.

#### In Accordance with the Recommendation of the New England Water Works Association.

NEWTON WATER WORKS, MIDDLESEX COUNTY, MASS.

Population by census of 1890, . . . . .	24,379
Date of construction, . . . . .	1876
By whom owned, . . . . .	City of Newton
Source of supply, . . . . .	Filter basin on the bank of Charles River, fed by in- cepted springs.
Mode of supply, . . . . .	Pumping through the mains to the reservoir, making the reservoir a storage and regulating basin.

#### Pumping.

1. Builder of pumping machinery, H. R. Worthington
2. Description of coal used :—
  - (b.) Kind, . . . . . Bituminous
  - (c.) Size, . . . . . Broken
  - (d.) Brand, . . . . . Georges Creek, Cumberland
  - (e.) Price per gross ton delivered, . . . . \$4.87
  - (f.) Percentage of ash (estimated) . . . . 6
  - (g.) Wood, price per cord, . . . . . \$6.00
3. Coal consumed for the year, in pounds, . . . . 1,340,900
4.  $\frac{\text{Wood consumed for the year, in lbs.}}{3} = \text{coal in lbs.} . . . . 12,800$

5. Total fuel consumed for the year (3) — (4), 1,353,700
6. Total pumpage for the year, in gallons, 359,487,217
7. Average static head against which pumps  
work, . . . . . 176.60
8. Average dynamic head against which pumps  
work, . . . . .
9. Number of gallons pumped per pound of  
coal, . . . . . 266
10. Duty in foot-pounds, per 100 pounds of coal,  
using following formula, reckoning only  
coal actually used in pumping :  

$$\text{Duty} = \frac{\text{Gallons pumped (6)} \times 8.34 \text{ (lbs.)} \times 100 \times \text{dynamic head (8)}}{\text{Total fuel consumed (5)}} =$$

**Cost of Pumping Figured on Pumping Station Expenses  
of \$6,776.85.**

11. Per million gallons raised against average  
dynamic head (8) into reservoir, . . . \$18.85
12. Per million gallons raised one foot high  
(dynamic) . . . . .

**Cost of Pumping figured on Total Maintenance (see  
Financial A A and B B), \$81,634.36.**

13. Per million gallons raised against average  
dynamic head (8) into reservoir, . . . \$227.08
14. Per million gallons raised one foot high  
(dynamic), . . . . .



## FINANCIAL STATEMENT.

## MAINTENANCE ACCOUNT.

RECEIPTS.		EXPENDITURES.	
DIVISION I.			
<i>From Consumers:</i>			
A.	Water rates, domestic . . . . .	\$51,930 99	
B.	Water rates, manufacturing . . . .	3,009 03	
C.	Services and meters put in and re- paired . . . . .	4,071 47	
D.	Total from private customers . . .	\$59,011 49	
<i>From Public Funds:</i>			
E.	Hydrant service, 612 at \$20 . . .	\$12,240 00	
F.	Horse troughs, 11, all metered . .	1,082 07	
G.	Street watering, metering rates . .	1,748 79	
H.	Public buildings, etc., all metered .	1,063 80	
I.	Drinking posts, 10 at \$6 . . . .	60 00	
J.	Public fountain, 1, metered . . .	30 43	
K.	Service pipe, etc., . . . . .	89 99	
L.	Total from public funds . . . . .	16,315 08	
M.	Gross receipts from all sources . .	\$75,326 57	
DIVISION II.			
N.	From fixed rates, domestic . . . .	\$7,925 74	
O.	From meter rates, domestic . . . .	43,998 25	
P.	From meter rates, manufacturing, .	3,009 03	
		\$54,933 02	
Q.	Balance, deficit . . . . .	10,231 83	
		\$85,558 40	
EE.	TOTAL . . . . .		\$85,558 40

AA. Management and repairs, details on page 41 . . \$14,794 36  
 BB. Interest on bonds . . . . . 66,840 00  
 CC. Service and meter account, details on page 42 . . 3,498 42  
 DD. Rebate account . . . . . 425 62



# FINANCIAL STATEMENT.—Concluded.

## CONSTRUCTION ACCOUNT.

RECEIPTS.		EXPENDITURES.	
From bonds issued . . . . .	\$211,883 95	Expended for all purposes on this account, for details see page 44 . . . . .	\$223,120 64
From pipe sold, labor, etc. . . . .	1,236 09		
Total . . . . .	\$223,120 64		\$223,120 64
Net cost of works to date. . . . .	\$1,440,531 93	{ \$600,000, 6 per cent. 250,000, 5 per cent. 322,519 65 { 550,000, 4 per cent. 5 per cent.	
Bonded debt at date . . . . .	1,400,000 00		
Value of sinking fund at date . . . . .			
Average rate of interest . . . . .			

**Consumption.**

1.	Estimated total population, . . . . .	25,000
2.	Estimated population on lines of pipe, . . . .	24,000
3.	Estimated population supplied at date, . . . .	23,500
4.	Total number of gallons consumed for year, . . . .	359,669,738
5.	Passed through domestic meters, gallons, . . . .	139,200,000
6.	Passed through manufacturing meters, gal- lons, . . . . .	22,100,000
7.	Average daily consumption in gallons, . . . .	985,396
8.	Gallons per day, each inhabitant (1), . . . .	39.4
9.	Gallons per day, each consumer, . . . . .	41.9
10.	Gallons per day, each tap (distribution 22), . . . .	222

**Distribution.**

1.	Kind of pipe used, . . . . .	Cast iron
2.	Size, . . . . .	From 20 inches to 4 inches
3.	Extended, . . . . .	17,984 feet
4.	Discontinued, . . . . .	None
5.	Total now in use, . . . . .	93 6-10 miles
6.	Cost of maintenance per mile, including re- pairs, blowing off, care of hydrants, etc., . . . .	\$6.95
7.	Number of leaks discovered for year, . . . .	6
8.	Small distribution pipes, less than 4 inches, total length, . . . . .	2 5-10 miles
9.	Hydrants added, . . . . .	36
10.	Number now in use, . . . . .	642
11.	Stop-gates added, . . . . .	24
12.	Number now in use, . . . . .	475
13.	Small stop-gates less than 4 inch, . . . .	33
14.	Number of blow-off gates, . . . . .	187
15.	Range of pressure at centre for day and night (average) pounds, . . . . .	69

**Services.**

16.	Kind of pipe used, . . . . .	Lead, wrought and cast iron	
17.	Size, . . . . .	From 1-2 to 4 inches	
18.	Extended, . . . . .	11,795 feet	
19.	Discontinued, . . . . .	None	
20.	Total now in use, . . . . .	52 9-10 miles	
21.	Service taps added, . . . . .	237	
22.	Number now in use, . . . . .	4,440	
23.	Average length of service, . . . . .	62 9-10 feet	
24.	Average cost of service, . . . . .	{ Gross, \$25.66	
		{ Net, 12.42	
25.	Meters added, . . . . .	311	
26.	Number now in use :		
	(a) Domestic, . . . . .	2,977	
	(b) Manufacturing, . . . . .	18	
		—	2,995
27.	Motors and elevators added, . . . . .	2	
28.	Number now in use, . . . . .	16	
29.	Stand-pipes for street watering, . . . . .	66	



## CITY OF NEWTON, MASS.

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### ORDINANCE XX.

#### Relating to the Water Department.

SECTION 1. A Water Board is hereby established consisting of five persons, one of whom shall be a member of the Board of Aldermen, one a member of the Common Council, and three at large. The offices of Water Registrar and Superintendent of Water Works are hereby established.

SECT. 2. The Superintendent shall have general superintendence of the out-of-door work of the department, under the direction of the Water Board.

Whenever any repairs are made or new work done, he shall make a detailed report to the Board of the kind of work performed, where located, the amount thereof, the quantity and kind of material used therefor, to whom chargeable, and any other particulars that may be deemed desirable or necessary. He shall perform any other duties prescribed by the Water Board.

SECT. 3. The Water Registrar shall keep full, complete, and detailed records of all doings and correspondence of the Water Board, also similar records and accounts of all the work done by the officers and employes of the department, showing the kind of work done, the location and cost thereof, and the account to which it is charged.

He shall also keep a full record of the name of each water-taker, the location and description of the building in which the water is used, the character of its use, the kind of service, the quantity supplied, and the amount charged therefor, all properly arranged for convenient reference.

He shall also keep a full record of the amount of water daily pumped, consumed, and in store ; and, generally, of all facts pertaining to the condition and use of the works that may be desirable for reference.

He shall perform any other duties prescribed by the Board.

SECT. 4. The Water Board shall have the general supervision and management of the water works, and shall have power to appoint, hire, dismiss, discharge, and fix the compensation of such other officers and employes of the department (except Superintendent and Registrar) as they shall deem necessary for a proper transaction of its business.

SECT. 5. The Board shall annually, in the month of January, present to the City Council a report to and including the thirty-first day of December of the preceeding year, containing a full statement of the doings of the department, of the condition of the work, and such other matters as they may deem proper.

SECT. 6. The Board shall annually, in the month of September, submit to the Committee on Finance of the City Council an estimate in writing of the receipts and expenditures of the department for the ensuing year.

SECT. 7. All bills and vouchers of purchases for the department, and pay-rolls and other bills for labor, shall be approved in writing by at least three members of the Board.

SECT. 8. All books of account and records in the department shall, at all times, be open to the inspection of any committee of the City Council designated to examine them.

SECT. 9. The Board shall attach a meter to all services supplying other fixtures than faucets ; also to fixtures supply-

ing only faucets where more than three are used. The Board shall also furnish meters to all water-takers who desire to use them, regardless of the fixtures supplied.

All meters hereafter set shall be furnished, maintained, and renewed at the cost of the city, and the Board shall charge an annual rental therefor; provided, nevertheless, that any meter injured through the negligence of a water-taker, or by frost, shall be repaired at his expense.

SECT. 10. All premises where water is taken may at any reasonable time be inspected by a properly authorized officer of the department; and full authority is hereby given to the Board to order such inspection whenever they deem it for the interests of the department that it be made.

SECT. 11. The owner and the occupant of the premises in which water is used, who fails to protect his meter from frost, or fails to keep the service pipes and fixtures in good order, and neglects to repair them in three days after they have become defective, or neglects to shut off the water to prevent waste, shall be liable to a forfeiture of two dollars; and if the forfeiture is not paid within two days after notice, the water shall be cut off, and shall not be let on until the waste is stopped and the fine is paid, together with two dollars for shutting off and letting on the water.

In case of a second offence within one year the water shall be shut off, and shall not be let on except by a vote of the Board, and the payment of such forfeit, not exceeding ten dollars, as the Board may impose.

SECT. 12. Applications for service pipes shall be made upon blank forms furnished at the office of the Board; when the estimated cost of the applicants part has been deposited, the pipes shall be laid. From the main to the street line the work shall be done at the expense of the city, the remainder at the cost of the applicant. The account shall be adjusted, and any balance paid before the water is turned on.

SECT. 13. Extensions of main pipe shall only be made

when authorized by an order of the City Council. Applications therefor must be made upon the blanks furnished by the Board, upon which shall be endorsed the estimate of cost of the extension desired. No such application shall be considered by the Board, unless accompanied by a written agreement, binding the applicant, or other responsible party, to guarantee the city annually, for at least five years, a sum equal to five per cent. of the total cost of the extension. All receipts, for water sold from such extension, and no other, shall be credited to the party making such guaranty as payments upon account of same.

Applications for extension of mains through private ways or grounds shall in no case be granted unless the owner thereof executes a proper instrument, securing to the city the right of permanent occupation, free from any acts of interference, that shall affect the safety of the pipe, and securing to the department free right of entrance for purposes of its inspection and maintenance. Nothing in this section, however, shall be construed as affecting the right of the City Council to authorize the extension of a water main without guaranty, if, upon a vote taken by yea and nay, two-thirds of the members of each branch present and voting, shall vote to do so.

SECT. 14. All bills for water, including the minimum charge for water furnished by meter, shall be payable to the Treasurer in advance, on the first day of March annually. Bills for specific supplies or for a part of the year, and fines and penalties, shall be paid before the water is let on. Where water is supplied by meter, the excess over minimum rates shall be payable semi-annually, on the first day of March and of September, for the six months next preceding.

SECT. 15. In every case of non-payment of the water rent for thirty days after the same is due, the Board shall cause a written demand to be left at the premises where the water is taken ; and unless the rent is paid within three days



thereafter, together with twenty cents for the demand, the Board shall cut off the supply. The water shall not be let on until the amount due, together with said fee, and two dollars for the shutting off and letting on, is paid whether other persons taking water through the service pipe are delinquent or not. In every case of non-payment of water rent, the owner of the premises, whether he is the occupant or not, shall be required to pay the same, and all charges connected therewith, provided he has been duly notified of the use of the water, and has made no objection.

Whenever the water is shut off by request of plumbers for the sake of making repairs, except those named in Section 11, the charge for shutting off and letting on shall be one dollar.

SECT. 16. The annual price or rent to be paid for the use of meters and for water shall be in accordance with the following schedule.

The Board is hereby authorized to make abatements and rebates in all proper cases ; no special rates, however, shall be allowed. In any case not provided for by the schedule, the Board shall set a meter, and charge for the water at meter rate.

#### SCHEDULE OF RATES.

##### *Dwelling Houses.*

If occupied by one family, one faucet, . . . .	\$6 00
Each additional faucet, not exceeding two, . . . .	2 00
One faucet used by two or more families, each family using, . . . . .	4 00
Set wash-tubs, not more than three in a set, each set, . . . . .	1 00

For all other fixtures, the water to be supplied through meters at following rates :

*For Consumption Averaging Daily for Six Months,*

Under 3,000 gallons per day.	(per 1,000 gal.),	35 cts.
Over 3,000 gal. and under 6,000 per day,	“ “ “	30 “
“ 6,000 “ “ “ 10,000 “ “ “	“ “ “	21 “
“ 10,000 “ “ “ 20,000 “ “ “	“ “ “	19 “
“ 20,000 “ “ “ 30,000 “ “ “	“ “ “	15 “
30,000 gals. and over per day,	“ “ “	12 “

(Each meter to be subject to a minimum charge of \$10.00 per annum.)

SECT. 17. Any plumber, or other person, who shall make any alteration in or addition to, any water pipe or fixture, except so far as a written permit therefor has been given by the Board, shall be liable to a fine not exceeding twenty dollars.

SECT. 18. Whoever opens any hydrant, or removes any cap thereof, or opens or makes any connection with the pipe or reservoir, or turns off or on the water in the pipe or reservoir, without the permission of the Board, except in case of fire, shall be liable to a penalty of not less than three, nor more than twenty dollars; provided, however, that in case of emergency the water may be turned off by any employe of the city, who shall, in such case, immediately give notice at the office of the Board.

SECT. 19. Whoever, without the authorization of the Board, fishes in the reservoir or filter basin, or discharges any gun or firearm upon the same or on the grounds connected therewith, or bathes therein, or places or uses any boat therein, or posts any bill, placard or advertisement within the said grounds, shall be liable to a fine of not less than five nor more than fifty dollars for each offence; and the Board is hereby authorized to exclude the public from any or all grounds of the department, whenever such exclusion may be

deemed by them necessary for the proper protection of the works.

SECT. 20. No water shall be sold to parties outside of the city.

SECT. 21. This amendment shall take effect, in so far as it relates to meters, on March 1, 1887 ; in all other respects it shall take effect upon its passage.



# RULES AND REGULATIONS OF THE NEWTON WATER DEPARTMENT.

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## **SECTION 1.**

### **Office.**

1. The office of the Water Board is hereby established in the room at City Hall now occupied by the Water Registrar.

## **SECTION 2.**

### **Organization.**

1. Besides the offices of Water Registrar and Superintendent, established by ordinance, the permanent organization of the department shall be as follows :

A civil engineer, an inspector of meters and fixtures, a pumping engineer, a fireman, a main-pipe foreman, a service-pipe foreman, three teamsters, and a clerk in the office of the Water Board. It is understood that the City Engineer is the civil engineer of this department.

## **SECTION 3.**

### **Water Registrar.**

1. The Water Registrar shall be the clerk and executive officer of the Board ; all orders and communications of the Board shall be signed by, or given through him, and shall be obeyed and respected accordingly.

2. He shall assess the water rates according to the tariff established by ordinance. He shall make out and distribute bills, exercise a constant supervision over the use of water, and attend to the enforcement of all regulations relating thereto.

3. He shall issue the orders of the Board for the laying of main and service pipe only after the requirements of the ordinance shall have been fulfilled; and in no case shall he order an extension in a private way until he has received a certificate from the City Engineer that said way is graded to proper level.

4. He shall be especially careful to see that the requirement of the ordinance regarding the pre-payment of water rates is strictly enforced, and in no event shall he order water turned on till the bill therefor shall have been paid.

5. He shall annually, on or before the first day of September, lay before the Board an estimate in detail of the appropriations required by the department, and of its income, for the next financial year.

6. He shall receive a daily report from the other officers of the department of the progress and condition of the work in their charge, and shall make a weekly report to the Board thereupon.

7. He shall keep copies or memoranda of all orders from the office and the reports of other officers closely posted up, and will be held responsible for the proper condition of the books, papers, and work of the office, as also for the due performance of the duties imposed upon him by ordinance.

#### **SECTION 4.**

##### **Superintendent.**

1. The office of the Superintendent is hereby established at the pipe yard at Newtonville.

2. The Superintendent shall have general charge of the out-of-door work. No new work shall be undertaken by him without the order of the Board; any work of maintenance, however, necessary to be performed without delay, may be done without said order, the Superintendent immediately reporting thereon to the Registrar.

3. He shall have control of the laborers and other employes engaged upon work under his charge. He shall have power to hire and discharge day laborers, and to suspend any other of his employes, giving immediate notice of such suspension to the Board for its action.

4. He will be held responsible for the good conduct of the men under his direction, the condition of the water, of the reservoir and its grounds, of the grounds about the pumping station, the basin and grounds in Needham, the piping, gates, hydrants, and other appurtenances of the department plant, and all tools and property at the pipe yard.

5. He shall be watchful to prevent or remedy any defect in a street or sidewalk resulting from the presence of main or service pipe or their appurtenances.

6. Before leaving his office he will report to the water office where he may be found while absent, and the time of his expected return.

7. He shall make daily reports to the Water Registrar of the progress and condition of work in his charge.

## SECTION 5.

### Inspector.

1. The Inspector, under the charge of the Registrar, shall make inspections of the fixtures and meters in service, at such times as the Registrar shall deem expedient, and he shall, in general, act as chief assistant to the Registrar.

2. He shall have charge of testing, setting, and repairing meters, and shall keep careful record of the dates and results of all tests made; of the condition of all meters removed for repairs, both before and after repairs are made, with the date of their removal and resetting. He shall also keep a careful record of the cost of setting, repairing, inspecting and renewing all meters, and a record showing the work performed by all meters from the date of setting, with the annual and aggregate expense of their maintenance, computed both per meter and per 100,000 feet of water registered.

3. He shall make daily reports to the Water Registrar of the condition and progress of the work under his charge.

## **SECTION 6.**

### **Engineer.**

1. Upon receipt of orders therefor from the Board, the City Engineer shall, within twenty-four hours, establish lines and grades for the extension of all water-mains, and shall take such measurements of main and service pipe extensions, and their appurtenances, as will enable him to correctly locate and plat the same; he shall keep the returns from the pumping engineer closely posted up, and shall plat therefrom a diagram showing the engine duty.

2. He shall make a daily report to the Water Registrar of the progress and condition of the work under his charge.

3. He shall perform such other duties as the Board may from time to time by vote require of him.



**SECTION 7.****Pumping Engineer.**

1. The pumping engineer shall be held responsible for the good condition of the pumping station, machinery, fixtures, furniture, tools, and other property of the department therein contained.

2. It shall be his personal duty to keep the engines, pumps, and engine-room in a neat and proper condition.

3. He shall be entitled to one day's leave of absence in each week, provided such absence will not interfere with the proper prosecution of the work of the department, but he shall not absent himself from the pumping station or its immediate vicinity without permission asked and obtained from the water office.

4. He shall keep closely posted up the book of record of the pumping engine, which will be furnished him.

5. He shall make a daily report to the Water Registrar of the height of water in the well and river; the quantity of water pumped, and of coal consumed, and of the general condition of the pumping station, and of the work under his charge. He shall also make weekly reports to the City Engineer of the engine record, upon blanks to be furnished him.

**SECTION 8.****Fireman.**

1. The fireman shall, under the supervision of the pumping engineer, attend to the firing of the boilers, and perform all work incidental thereto; it shall be his personal

duty to keep boilers, furnaces, boiler-room, coal-room, and other adjuncts to the boiler-room, in a neat and proper condition.

2. He shall not absent himself from the pumping station without permission of the pumping engineer, but shall be entitled to one day's leave of absence in each week, when such absence will not interfere with the proper performance of his duties.

3. He shall keep a careful record of the amount of coal used, and the purpose of its use.

## **SECTION 9.**

### **Employes.**

1. The foreman of main and service pipe and two of the teamsters shall at all times be under the direction of the Superintendent; the other teamster shall be also under the direction of the Superintendent at such times as his services are not required by the Inspector. The clerk in the Water Board office shall be under the direction of the Water Registrar.

## **SECTION 10.**

### **General Rules.**

1. The matter of employment and discharge of other assistance than labor shall be exercised only by the Board.

2. The Board shall establish the compensation of all employes of the department, under the ordinance, and no change in compensation of any employe shall be made without the consent of the Board.

3. No expenditure whatever shall be incurred by any employee of the department without authority therefor from the Board.

4. The Board desires that it shall be distinctly understood by all employes, that the department expects, in return for the pay attached to their several positions, the whole of their time, and the best of their ability. No extra pay for work directly connected with their duties will be allowed to persons whose pay is fixed by the month or year, and no absence from duty without leave will be permitted.



















